Emotion regulation in psychosis.

Karen Livingstone

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Declaration

**This thesis has been composed by myself,
the work contained herein is my own
and it has not been submitted for any other degree
or professional qualification except as specified.**

Karen Livingstone

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ABSTRACT

Objectives

The emotional experience of individuals who experience psychosis has to a large extent been neglected, possibly in part due to the historical divide between the psychoses and neuroses. However recent research would suggest that individuals who experience psychosis experience emotional dysfunction to a similar extent as those with other mental health problems. The relatively new field of emotion regulation may provide insight into emotional dysfunction in psychosis and therefore the aim of this thesis is to better understand emotional experience and regulation in psychosis in comparison with other mental health problems and healthy volunteers.

Design

This study used a between-groups design and was based on an opportunity sample of patients attending clinical psychology departments.

Methods

Three groups of participants were recruited for this study comprising of 21 individuals who had experienced psychosis, 21 individuals with an anxiety/mood disorder and 21 healthy volunteers. The participants completed 2 measures of emotion regulation: the Emotion Regulation Questionnaire (ERQ) and the Emotion Regulation Questionnaire-2 (ERQ-2); a measure of emotional experience: the Basic Emotions Scale and a measure of coping strategies: the Brief COPE.

Results

The clinical groups were found to utilise similar emotion regulation strategies and in comparison to healthy volunteers they used significantly more dysfunctional and less functional strategies. The clinical groups were found to experience similar levels of emotions and in comparison to healthy volunteers they experienced greater levels of negatively valenced emotions and lower levels of happiness. The clinical groups were also found to use greater amounts of maladaptive coping strategies and lesser amounts of problem-focussed coping strategies than the healthy volunteers.

Conclusions

Overall it appears that emotional experience and regulation in psychosis may be more similar to neuroses than originally was believed to be the case. This would suggest therefore that theories of psychosis should take into consideration emotional dysfunction. Difficulties with emotion regulation should be considered as potential contributory factors in the development, maintenance and course of psychosis. Further research is required in order to validate the findings of this study and to further develop theories of emotion regulation in psychosis.

CONTENTS

Chapter 1: Introduction

1.1. Overview

The emotional experience of individuals who have experienced psychosis has been a neglected area of research (Birchwood, 2003). As will be demonstrated this is likely due to the historical divide between the neuroses and psychoses. Current psychological models of psychosis will be reviewed followed by a review of relevant research relating to emotional experience in psychosis. This review will demonstrate the grounds for investigating emotional experiences in psychosis. Emotion regulation theories and models will be outlined and considered in relation to psychosis. The broader concept of coping in psychosis will also be reviewed in relation to emotional functioning. The aims and rationale for the study will then be laid out with specific research hypotheses.

1.2. History of schizophrenia

The development of early understandings of schizophrenia can be traced back to the psychiatrist Emil Kraepelin working in the late 19th and early 20th centuries. In the medical tradition of attempting to classify disorders, Kraepelin identified a number of behaviours (symptoms) which he identified as occurring together and named the disorder 'dementia praecox', literally meaning unusually early mental deterioration. The symptoms he highlighted as most common in this disorder were hallucinations, delusions, thought disorder and flattened affect. Dementia praecox was distinguished from organic psychoses, such as Alzheimer's disease, as there was no identifiable characteristic neuropathology. However it was considered as distinct from the

neuroses resulting from the implicit assumption that neurotic disorders have psychological aetiology while psychotic disorders have organic aetiology (Freeman and Garety, 2003).

Following on from Kraepelin's work Eugen Bleuler coined the term schizophrenia, literally meaning 'split mind' to expand Kraepelin's understanding of dementia praecox to include paraphrenia (pronounced delusions and hallucinations without marked intellectual deterioration) and paranoia. Bleuler's classification attempted to take into account the underlying psychological processes that may account for the disorder and placed considerable emphasis on the role of affect. Bleuler considered that at the heart of schizophrenia was a loosening of associations which linked thoughts together accompanied by the experience of ambivalent and conflicting emotions and attitudes, social withdrawal and dominance of fantasy and the experience of inappropriate or incongruent affect (Bentall, 2003). Bleuler proposed that hallucinations and delusions were accessory features of schizophrenia.

In the early 1960's Karl Jaspers took a different approach to the understanding of schizophrenia. He used a phenomenological approach in which the clinician's inability to understand or empathise with the patient's experiences was what differentiated schizophrenic symptoms (Lavender, 2000). In a similar vein Schneider's (1959) first rank symptoms of schizophrenia were phenomena which were not understandable, such as hearing one's thought spoken aloud or holding a conviction that external forces are interfering with bodily functions.

More recently symptoms of schizophrenia have been categorised as positive (functional distortions or excesses) and negative (deficits). Positive symptoms include hallucinations, delusions, thought disorder and disorganised behaviour while negative symptoms include apathy, blunted affect, withdrawal and poverty of speech (Wing, 1989). These categories have been incorporated into the current diagnostic systems and the presence of positive symptoms has, for many clinicians, become a significant indication that an individual is experiencing a psychotic episode and should therefore be given a related diagnosis (e.g. schizophrenia).

At the heart of the current diagnostic systems, the fourth edition (text revision) of the Diagnostic and Statistical Manual (DSM-IV-TR, American Psychiatric Association, 2000) and the tenth edition of the International Classification of Mental and Behavioural Disorders (ICD-10, World Health Organisation, 1992), there remains a strong Kraepelinian influence (Bentall, 2003). These systems provide lists of similar signs and symptoms required for the diagnosis of a number of types or subtypes of psychotic disorders. They also provide inclusion and exclusion criteria for diagnosing schizophrenia and other psychotic disorders.

There is a significant difference in these systems as to how long an individual has to have experienced certain symptoms to receive a diagnosis. For example, in the ICD-10 (World Health Organisation, 1992) an individual should have experienced delusions or hallucinations for 1 month minimum, while the DSM-IV-TR (American Psychiatric Association, 2000) requires that the individual should have experienced these for a minimum of 6 months to receive a diagnosis of schizophrenia. This lack

of consensus between the two systems highlights the difficulty with the reliable diagnosis of schizophrenia (Read, 2004a).

1.2.1 Reliability and validity of schizophrenia

Given the differences in classification systems it is pertinent to consider the reliability and validity of schizophrenia as a diagnostic entity. In relation to reliability, Read (2004a), after reviewing a number of reliability studies, concluded that 'the category remains disjunctive today' (Read, 2004a: 46) given that the majority of studies reviewed reported a wide variety of reliability rates between clinicians.

Bentall, Jackson and Pilgrim (1988) suggest that there are three main conditions that should be fulfilled for schizophrenia to be considered a valid concept: firstly that the symptoms should occur together but not in other disorders, secondly that from diagnosis it should be possible to predict onset, outcome and response to treatment and lastly that diagnosis should be related to aetiology.

In relation to the first condition that symptoms should occur together and not in other disorders a number of studies have found that schizophrenic symptoms can often be identified in individuals with other diagnoses e.g. bipolar disorder (Crow, 1990), dissociative identity disorder (Ellason and Ross, 1995) and mania (Warner, 1994). In addition, Kendler, Gallagher, Abelson and Kessler (1996) found that individuals diagnosed with non-affective psychoses had a lifetime prevalence of 73.4% for mood disorders and of 71.4% for anxiety disorders.

The second condition that diagnosis should predict onset, outcome and response to treatment has also not been fulfilled. Kraepelin believed the disorder to have an early, continuous and deteriorating course, although more recent evidence has suggested that the onset can be acute or insidious, that the course can be episodic or continuous and that the prognosis can be favourable with up to one quarter of those diagnosed with schizophrenia showing full recovery (Ciompi, 1980). Read (2004a) suggests that psycho-social factors such as work performance, social skills and family tolerance are far superior at predicting prognosis in individuals diagnosed with schizophrenia. In relation to aetiology there is no clear relationship between diagnosis and the cause of schizophrenia. Numerous studies have attempted to find an underlying cause but as yet there is no overall agreement on aetiology (Lavender, 2000; Read, 2004b).

The stability of schizophrenic diagnosis has also been called into question. Chen, Swann and Burt (1996) reviewed the case files of 936 individuals diagnosed with schizophrenia who had been admitted to a psychiatric hospital on at least four occasions during the study period. They found that over 20% of individuals diagnosed with schizophrenia received a different diagnosis (such as schizoaffective disorder, bipolar disorder, or unipolar disorder) on subsequent admissions. Females and Hispanics were most likely to receive a change in diagnosis from schizophrenia to another disorder while African Americans were most likely to receive a change in diagnosis from another disorder to schizophrenia. This study suggests that demographic and socio-economic factors may play a role in diagnostic instability.

It can be seen that there are a number of difficulties with the reliability and validity of the concept of schizophrenia, the diagnosis also carries with it negative connotations and implications that individuals (diagnosed with schizophrenia) have some as yet unidentified brain disorder. Therefore a number of researchers and clinicians have suggested that it is more appropriate to study the symptoms and experiences of individuals as opposed to the syndrome of schizophrenia (Bannister, 1968; Bentall, Jackson and Pilgrim, 1988 and Costello, 1993). Some suggest instead using a less stigmatising term such as psychosis (Harrop and Trower, 2003) which would also include individuals who experience difficulties that would be diagnosed as bipolar, schizoaffective and related disorders.

The present thesis seeks to study as broad a sample as possible whilst imposing the minimum amount of diagnostic criteria for inclusion in this study, especially given the limited research in this area. Thus for the purposes of this thesis the term psychosis includes diagnoses such as schizophrenia, schizoaffective disorder, affective psychosis, non-affective psychosis and bipolar disorder. Therefore while participants in the psychosis group will all have experienced some psychotic phenomena their diagnoses may vary.

1.3. Psychosis

1.3.1. Psychosis: categorical entity or continuum?

Psychosis has historically been considered as a categorical entity (Beer, 1996) however more recently research has been carried out to determine whether a continuum model could add to a better understanding of psychotic phenomena.

Johns, Cannon, Singleton, Murray, Farrell, Brugha, Bebbington, Jenkins and Meltzer (2004) carried out a study to look at the prevalence rates of self-reported psychotic symptoms in the British population. They surveyed 8580 people and found 5.5% of individuals endorsed items on the Psychosis Screening Questionnaire (PSQ). Although this study found lower rates of self-reported psychotic phenomena than previous studies (e.g. Kendler, Gallagher, Abelson and Kessler, 1996) one important finding was that individuals who endorsed one or more items on the PSQ had demographic and clinical correlates similar to those experiencing clinical psychosis, such as recent stressful life events, victimisation and alcohol and cannabis dependence. This finding is consistent with a continuum model of psychosis.

Stefanis, Hanssen, Smirnis, Avramopoulos, Evdokimidis, Stenfanis, Verdoux and van Os (2002) also carried out a study investigating psychotic experiences in the general population. They found evidence for a continuum model of psychosis and further found evidence that the frequency of symptoms was associated with higher distress. Their study also supported their idea that the experience of depression accompanies psychotic experiences in the general population and they proposed that this could be due to a sharing of aetiological factors.

In relation to aetiological factors, Myin-Germeys, Krabbendam and van Os (2003), reviewed a number of studies related to the experience of psychotic symptoms in the general population. They found evidence that aetiological factors related to clinical psychosis were also found in individuals in the general population who had psychosis-like experiences. For example, men were more likely to display negative

symptoms, the age of experience of psychotic-like symptoms was younger in men, experiences of discrimination, trauma and urban living were higher in individuals who had experienced psychotic-like symptoms, cannabis use was associated with higher levels of psychotic-like experiences and personality traits (such as neuroticism) were also found to be higher in individuals in the general population who reported psychotic-like experiences. They concluded from their review that there was good evidence that psychosis exists as a continuum in the general population.

Hallucinations and delusions have also been reported by individuals experiencing conditions of extreme sensory deprivation, (Leff, 1968) sleep deprivation (Babkoff, Sing, Thorne, Genser and Hegge, 1989) and bereavement (Grimby, 1993).

It would appear therefore that it may be preferable to characterise psychotic experiences as lying on a continuum from psychotic-like experiences to psychotic disorders as opposed to a dichotomy between normal and abnormal. As with mood and anxiety disorders clinical levels of psychosis may be reached once the symptoms significantly interfere with the individual's functioning.

1.4. Psychological theories of psychosis

Recently there has been growing interest in attempting to understand the symptoms of psychosis from a psychological perspective (e.g. Garety, Kuipers, Fowler, Freeman, and Bebbington, 2001; Hingley, 1997a,b; Morrison, 1998, Chadwick and Birchwood 1994). These approaches have focussed on an attempt to understand and

explain specific experiences/behaviours of individuals who experience psychosis. Although it is beyond the remit of this thesis to provide a comprehensive review of every psychological theory of psychosis it is useful to briefly summarise the most influential accounts that are of particular relevance to this study.

1.4.1. Neuropsychological theories

Neuropsychological models are based on the assumption that the brain works in a similar fashion to a computer with regard to how it processes information (e.g. Frith, 1992). They integrate neurological and cognitive explanations of psychosis in an attempt to explain how cognitive impairment, resulting from neurological damage, may give rise to psychotic experiences.

It has been suggested that the symptoms of schizophrenia may result from disrupted self awareness. Frith (1992) proposed that auditory hallucinations may result from the misattribution of internal events to an external source. Frith (1992) cites evidence of auditory hallucinations being accompanied by covert movements of the speech musculature, which accompanies inner speech. It could be postulated that other forms of hallucinations, such as visual hallucinations, may also be due to misattribution of, for example, mental imagery. One possible explanation for this misattribution could be a neurologically based deficit in the mechanisms responsible for internal monitoring (Frith, 1992). Specifically it is suggested that dysfunction in the neural pathways between the septohippocampal system and the prefrontal cortex, as well as dopamine dysregulation in these areas of the brain, may be related to the disruption of consciousness. More research would be required in this area in order to

determine the source of the neuropsychological deficit and to discover why these mechanisms are functioning differently in individuals who experience psychosis.

A similar model, related to self monitoring, has been proposed by Hemsley (1996). According to this model there is a disturbance in the processing of current perception, such that stored memories are not fully integrated with current sensory input, resulting in information not being integrated within temporal and spatial context. This lack of integration is proposed to lead to individuals experiencing non-relevant features of their environment as personally relevant while thoughts and memories which are irrelevant to the current situation are assessed, perceived as alien and attributed to an external source, as opposed to being experienced as self generated (for example, the mind wandering). This dysfunction in monitoring can therefore lead to individuals experiencing symptoms such as hallucination and delusions of reference, as they either experience non-relevant stimuli as relevant or their own thoughts and memories as having come from external sources.

It can be seen that the neuropsychological models discussed above highlight one particular deficit which is proposed to be fundamentally responsible for the manifestation of psychotic symptoms resulting from deficits in information processing. However the resulting hypothetical models of neurological pathways which have been proposed await empirical verification.

A different approach than that of building unifying theories, has been of studying specific psychotic symptoms (e.g. Bentall, Jackson and Pilgrim, 1988). This

approach has lead to the development of cognitive models of psychotic symptoms.

1.4.2. Cognitive theories

Cognitive models of psychosis come from the standpoint that psychotic symptoms do not necessarily reflect the presence of an underlying disorder rather that they lie on a continuum with normal experiences. These models offer specific explanations for individual symptoms and propose therapeutic approaches for these (e.g. Morrison, 2002). The majority of cognitive models of psychosis focus on positive symptoms, specifically hallucinations and delusions.

Bentall (1990) suggests that hallucinations may represent cognitive biases (as opposed to deficits proposed by neuropsychological models e.g. Frith, 1992). It is proposed that individuals who experience psychosis misattribute internal stimuli to an external source and that their beliefs about what kinds of events are likely to occur may increase their likelihood of misattributing internal stimuli. Bentall (1990) argues that this process could explain why cultural differences are apparent in the experience of hallucinations as different cultures hold different beliefs about hallucinatory experiences. He further suggests that this bias is reinforced by a reduction in anxiety which occurs due to the misattribution of particular types of internal events (especially negative thoughts about the self) as externally generated. Morrison, Haddock and Tarrier (1995) argue that misattributions can account for both the negative and positive emotional content of auditory hallucinations related to whether the individual has underlying positive or negative schema about themselves (i.e. the auditory hallucinations are congruent with their underlying schemata).

Chadwick and Birchwood (1994) further develop ideas about the roles of beliefs in psychotic experiences. They highlight the findings that individuals vary with regard to whether they experience hallucinations as distressing and frightening or as reassuring or amusing. Chadwick and Birchwood (1994) suggest that the degree of distress created by the experience of hallucinations is mediated by the individual's beliefs about the voices' power and authority. This model is informed by Beck et al's cognitive model of depression (Beck, Rush, Shaw and Emery, 1979) in which individual's symptoms are consequences of their beliefs as opposed to situational antecedents. Birchwood, Meaden, Trower, Gilbert and Plaistow (2004) later expanded this understanding to include individual's beliefs about their social ranking. The proposal is that individuals who perceive themselves as ranking lower than their voice (as a result of past and current interpersonal relationships) will be more distressed by their experiences.

Morrison (1998) offers an understanding of hallucinations based on Clark's (1986) model of panic disorder. Morrison starts by considering that auditory hallucinations can be considered to be normal phenomena, given the reports in the general population (discussed earlier). As with Clark's (1986) panic model and Beck et al.'s (1979) depression model, it is the interpretation/appraisal of the auditory hallucinations (as threatening physical or psychological integrity) which determines an individual's reaction to them and resulting distress. Morrison's (1998) model proposes that misinterpretation of an internal or external trigger giving rise to an auditory hallucination leads to an increase in negative mood and physiological arousal, the individual then engages in safety seeking behaviours, such as

hypervigilance, which maintains the misinterpretations. The increased levels of arousal may make misinterpretations of ambiguous stimuli more likely. While this model does not offer an explanation as to the development of auditory hallucinations, other than them being normal experiences, it could be combined with others, such as Frith's (1992) neuropsychological deficit theory outlined above.

Slade and Bentall (1988) also consider misattributions as key to hallucinatory experiences and suggest five factors implicated in the occurrence of hallucinations:

- Stress induced arousal
- Predisposing factors (especially a deficit in reality testing)
- External stimulation (deprivation or over stimulation)
- Reinforcement (anxiety reducing)
- Expectations (cultural beliefs)

It is the combination of these factors that Slade and Bentall (1988) propose lead to individuals experiencing internal events as external stimuli. This model is useful as it explicitly integrates a number of factors outlined in other models (such as reinforcement and neuropsychological deficits). However it remains unclear which factors lead to each other and as with Frith's (1992) model the reasons why individuals would have a deficit in reality testing are not well understood.

Delusions were traditionally assumed to be uninformative 'empty' speech acts (Bentall, 2004) although more recently psychologists have been attempting to gain a better understanding of their maintenance and development. The most common

forms of delusions are persecutory/paranoid, negative beliefs about the self or grandiose beliefs (Bentall, 2004). Current cognitive theories attempt to explain delusions as developing from the same processes as non-delusional beliefs.

Maher (1974) suggested that individuals who experienced delusions were using normal reasoning processes to make sense of anomalous experiences. The delusions may then be maintained by processes such as 'self-fulfilling prophecy', seen in non-delusional individuals, whereby the outcome is in line with the individuals expectations due to them behaving in a way which makes their expected outcome more likely. Maher (1974) does not however explain why certain individuals would be more likely to experience anomalous experiences.

Garety and Hemsley (1994) suggested that delusions may result from reasoning biases whereby individuals make greater use of current information than past learning and are over reliant on expectations in novel situations. It is suggested that the reliance on current information is implicated in the formation of delusions while the over reliance on expectations maintains delusions by increasing attendance to information which confirms the delusional explanation. Evidence for this proposal comes from studies investigating hypothesis testing.

Dudley, John, Young and Over (1997) investigated reasoning biases in hypothesis testing in individuals who had experienced delusions. In this study they found that individuals who had experienced delusions were more likely to jump to conclusions based on limited information. They also found that when given sufficient information

individuals who had experienced psychosis were equally as good at making predictions as depressed individuals and healthy controls. They concluded therefore that delusional thinking in psychosis was related to data-gathering bias as opposed to deficits in their reasoning ability and suggest that this may be functional in that it reduces cognitive demands of a task. One important factor to note is that when presented with disconfirmatory evidence the individuals who had experienced delusions were equally willing to change their conclusions, this is inconsistent with traditional views that delusional individuals are resistant to counter-evidence to their beliefs and highlights the need for better explanations of how reasoning biases actually lead to delusional experiences. While this theory goes some way to explaining how delusions beliefs may develop it does not explain their maintenance in the face of disconfirmatory evidence.

Freeman, Garety, Fowler, Kuipers, Bebbington, and Dunn (2004) suggest that individuals who experience delusions do not choose more realistic explanations perhaps because they are unaware that there are other explanations possible for their experiences. They consider that in the case of internal experiences a lack of awareness and knowledge of these leads to the generation of externalised delusional explanations. They also suggest that alternative explanations need to be as compelling as the delusional explanation for the individuals, in order for them to consider them as feasible.

Freeman, Garety and Kuipers (2001) propose an explanation of the maintenance of delusional beliefs. To do this they focus on why individuals who experience

delusions discard disconfirmatory evidence. They suggest that as with anxiety disorders (Salkovskis, 1991) individuals who experience delusions may be utilising safety seeking behaviours which prevent disconfirmation of their threat beliefs. In their study they found evidence that all the individuals in their study who experienced persecutory delusions reported safety behaviours and that they believed these behaviours had a degree of success. They note however that while their findings support their model of safety behaviours maintaining delusions, that there are likely to be other factors in the maintenance of delusions, such as experiences being accommodated into the delusional framework.

Bentall (2004) proposes that delusions may be related to self-serving attributional biases. This model stems from the belief that in order to make sense of the world around us we generate causal explanations for events. Most people exhibit a self serving bias in that they tend to make internal attributions for positive events and external attributions for negative ones. It is suggested that individuals with delusions display an exaggerated self-serving bias. This model makes intuitive sense as it would imply that the more negative events experienced as externally caused, the increasing likelihood of paranoia. Garety and Freeman (1999) point out however that while paranoid delusions appear to function to preserve self-esteem, individuals who experience paranoid delusions often have low self-esteem. This paradox could occur due to feelings of entrapment in relation to the delusions (discussed more fully in section 1.5.3.)

In the cognitive models reviewed above it can be seen that many of them discuss the importance of emotion/distress in the development or maintenance of psychosis. For example Bentall (1990) proposes that misattributions of internal experiences to external stimuli can serve to reduce anxiety, while other models identify safety seeking behaviours, which serve to reduce anxiety, as important in the maintenance of psychotic symptoms. Cognitive models of psychosis focus much of their attention on the appraisals made by individuals who experience psychosis and tend to view these as key to the development and maintenance of their difficulties.

1.4.3. Psychodynamic theories

Psychodynamic theories of psychosis can be traced back to Freud's unitary approach in which the basis for neurotic disorders (e.g. intra-psychic conflict and defence mechanisms) also applied to psychosis (Hingley, 1997a). Even though Freud considered the basis of psychosis and neurosis to be similar, he developed the view that those who experienced psychosis could not be involved in analytic work as they were unable to establish a close therapeutic alliance and thus a transference relationship could not be formed (Silver, Koehler, and Karon, 2004). Other psychoanalysts, such as Jung (1937), Fromm-Reichmann (1950) and Cullberg (1991), however disagreed with this view and adapted psychoanalytic techniques in order to develop therapeutic alliances with those who had experienced psychosis. This form of therapy was based on the assumption that individuals who experienced psychosis had fragile Egos which were defended by regression to early childhood forms of communication. The focus of therapy was therefore on gradual development of more mature/adult forms of communication.

Psychodynamic theories propose that interactions between a baby and its caregiver are crucial to the development of sense of self (Winnicott, 1960), the ability to manage internal and external experiences (Bion, 1962) and to distinguish between them. The ability of the caregiver to help the baby manage its anxieties is viewed as paramount (Klein, 1946/86). If there are inadequacies in this relationship these may lead to the development of a fragile Ego characterised by insecure sense of self, insecure boundaries between the self and others and difficulties with relating to others. Frosch (1983) and Klein (1946/86) propose that when anxieties are not made bearable the infant 'splits off' these emotions and projects them onto the external world, leading to a distorted reality. Frosch (1983) suggests that in essence psychosis reflects an incapacity to reality test and to distinguish between the internal and external world. Psychoanalysts propose that when an individual, who has developed a fragile sense of self, feels threatened they will respond using a pattern of childhood defence mechanisms such as splitting off, projection, denial and distortion, it is this defence pattern, characteristic of early childhood, which is viewed as responsible for psychotic experiences such as hallucinations and delusions.

Psychotic experiences are therefore viewed as likely to occur at times of emotional difficulty during which the vulnerable individual 'splits off' overwhelming negative emotions and projects them onto an external source in order to protect the Ego from underlying negative feelings (e.g. anxiety). This external source is then viewed as 'bad' or persecutory. This distortion in perception and realty testing is therefore a product of an interaction between a vulnerable Ego and the use of childhood defence mechanisms. Robbins (1993) noted that psychoanalysts do not deny the role genetics

may play in the development of psychosis and suggested that vulnerability to immature defence mechanisms may result from an interaction between genetics and inadequate parenting.

Much of psychoanalytic understanding of psychosis is derived from clinical experience through intense, prolonged therapeutic contact. This has allowed psychoanalysts to gain a significant depth of understanding of individuals' personal vulnerabilities, defence mechanisms and meaning of psychotic phenomena. A possible weakness is the extent to which individual findings can be generalised to others (Lavender, 2000).

Despite contrasting views on the validity and efficacy of psychodynamic approaches to psychosis (Hingley, 1997a; Mueser and Berenbaum, 1990) some psychodynamic concepts have received support from researchers in cognitive theories. Some of the cognitive theories of psychosis outlined above can be seen to be closely related to psychodynamic theories. For example, Bentall's (2004) proposal that external attributions for internal events serve to reduce anxiety can be viewed as a defence mechanism (projection) in psychodynamic terms (Hingley, 1997a). The finding that individuals who experience psychosis are more likely to jump to conclusions (Dudley, John, Young and Over, 1997) may reflect Frosch's (1983) ideas about disturbed reality testing.

1.4.4. Summary and integration

It can be seen that many of the psychological theories of psychosis involve consideration of the role emotions may play in the development and maintenance of psychotic phenomena, although emotional experience in psychosis as a whole has been a somewhat neglected area of research. Cognitive theories and psychodynamic theories appear to share similar ideas about psychosis, such as reduction of anxiety, although they are described using different terms. The neuropsychological theory of lack on internal monitoring (Frith, 1992) may relate to emotional disturbance in that individuals who experience psychosis may experience overwhelming emotions without a clear explanation about where they came from, as a result of an internal monitoring deficit. Given the possible role of emotions in psychotic experiences it seems imperative to consider the emotional experience of individuals who experience psychosis.

1.5. Emotional functioning and psychosis

1.5.1. Historical background

The study of emotions in psychosis has historically been a neglected area, this is likely to be related to the Kraepelinian divide between neuroses and psychoses described earlier (Birchwood, 2003). This lack of acknowledgement of the importance of emotional functioning in psychosis is reflected by the lack of emphasis in the diagnostic criteria for schizophrenia, which attend to emotional functioning on a somewhat superficial level describing emotional experience as blunted, often involving a restricted capacity to experience pleasurable emotions (DSM-IV-TR, American Psychiatric Association 2000, ICD-10, World Health Organisation 1992).

While Bleuler's understanding of schizophrenia placed significant emphasis on affective disturbance, theory, research and practice can be seen to be substantially influenced by the Kraepelinian approach (Bentall, 2003), where psychosis is understood as a primarily cognitive disorder, manifested by disturbances in thinking, as opposed to a primarily affective disorder, such as mania (Ciompi, 1998).

It may be appropriate to ask therefore why emotions should be studied in relation to psychosis. It could be argued that if there is an emotional disturbance present it is more than likely that it may have an influence on psychosis (Freeman and Garety, 2003) and that a greater understanding of emotional dysfunction in psychosis could in turn lead to a greater understanding of emotional factors as a contributory factor in the development and maintenance of psychosis (Strauss, 1989).

1.5.2. Emotional experience in psychosis

Suslow, Roestel, Ohrmann and Arolt (2003) investigated the experience of emotions in individuals with a diagnosis of schizophrenia. They found that regardless of whether the patients were diagnosed with or without affective symptoms they reported feeling negative emotions, such as fear, disgust, anger, guilt and shame, more often than a healthy control group. This study found a full range of positive and negative emotional experiences in individuals with a diagnosis of schizophrenia. Van Os, Gilvarry, Bale, van Horn, Tatten, White and Murray (2000) also found high rates of affective symptoms in patients diagnosed with affective and non-affective psychosis suggesting that overlap between these diagnoses may be common.

In relation to the period prior to diagnosis (prodromal phase) there is a consensus that the majority of individuals experience symptoms of anxiety, depression and irritability up to four weeks prior to the appearance of positive psychotic symptoms (Freeman and Garety, 2003). In Docherty, van Kammen, Siris and Marder's (1978) description of the stages of onset of psychosis there appears to be a range of emotions experienced by individuals, such as anxiety and irritability; a sense of being overwhelmed; depression; apathy; hopelessness and disinhibition (with possible elevation in mood). These findings of mood disturbance prior to positive psychotic symptoms may suggest there is an interaction between emotion dysfunction and psychotic symptoms.

With regard to anxiety disorders accompanying psychosis, Cosoff and Hafner (1998) found high rates of comorbid anxiety in schizophrenia, schizoaffective disorder and bipolar disorder. They found the proportion of individuals with an anxiety disorder (43-45%) was almost identical across the three diagnostic groups. They also found that in half of these cases the anxiety disorder appeared to predate the onset of psychosis by 2-5 years. They propose that this highlights the need for better identification of comorbid anxiety disorders in psychosis in order to offer possible treatments for anxiety alongside treatment for psychosis. Given these findings of anxiety preceding the onset psychosis it could be suggested that anxiety plays a causal role in the development of psychotic phenomena rather than simply occurring as a comorbid disorder. Emsley, Oosthuizen, Niehaus and Stein (2001) suggest that there is increasing evidence that anxiety symptoms are of considerable clinical

importance in psychosis and state that they may compromise social and vocational functioning as well as increase the risks of relapse and suicide.

Brockington, Kendel and Wainwright (1980) suggest that up to 10% of all psychotic admissions may be accounted for by a combination of depression and positive psychotic symptoms. In their study they noted that in nearly one third of their sample they could not agree on a final diagnosis again highlighting the difficulties inherent in the classification systems, especially in relation to emotional disturbances in psychosis. Johnson (1988) found high rates of depression (65%) in individuals diagnosed with schizophrenia who had recently recovered from an acute episode of psychosis. It is also of note that in this sample over half the patients experienced depressive symptoms prior to an acute relapse of their psychosis perhaps suggesting that emotional disturbance was implicated in their relapse.

A further study which investigated depression and anxiety in schizophrenia was carried out by Norman, Malla, Cortese and Diaz (1998). Their results showed that anxiety and depression were substantially interrelated. However when they controlled for anxiety scores they found depression to be more strongly related to negative than positive symptoms and when they controlled for depression scores they found anxiety to be more strongly related to reality distortion than negative symptoms. This study provides further preliminary evidence that emotional disturbance may be related to the onset or course of symptoms of psychosis.

Overall it can be seen that there is a high frequency of affective disorders, such as anxiety and depression, in individuals who have experienced psychosis. These disturbances can be seen prior to the development of psychosis (Freeman and Garety, 2003) and are also implicated, in relation to stressful life events, in relapse (Neale, Blanchard, Kerr, Kring and Smith, 1998).

An example of the relationship between affective disturbance and the course of psychotic illness comes from studies of expressed emotion within the family. A number of studies have found high levels of expressed emotion in key relatives, defined as criticism, hostility and emotional over-involvement, to be significantly related to relapse (Neale, Blanchard, Kerr, Kring and Smith, 1998). In order to explain the mechanism by which high levels of expressed emotion relate to relapse Buck, Goldman, Easton and Norelli Smith (1998) suggest that individuals who experience psychosis may be highly sensitive to the negative emotional expressions of others and that this may exacerbate their symptoms by increasing their own levels of negative emotions and decreasing the experience of positive emotions.

Anhedonia (reduced capacity to experience pleasure) has been found, using self-report and clinical assessments, to be a relatively stable trait in psychosis (Blanchard, 1998). Anhedonia has been found to be related not only to reduced experience of positive emotions but also to increased experience of negative emotions (Blanchard, 1998). Several studies have compared individuals who have experienced psychosis with individuals with an affective disorder and have found similar levels of anhedonia (Blanchard, 1998). The mechanisms underlying anhedonia are unclear.

Blanchard (1998) suggests that anhedonia could result from an inability to experience positive emotions due to some form of deficit or could reflect changes in the individual's behaviour such that they are less likely to take part in activities which may generate positive emotions. This change in behaviour may result from the individuals' attempt to cope with environmental stimulation through a reduction in interactions, with the drawback of reducing situations in which positive emotions may be experienced.

When considering emotions in individuals with psychosis it is important to consider the symptom of flat affect (diminished expression of emotion). Kring, Kerr, Smith and Neale (1993) carried out a study to assess flat affect from facial expression and reported subjective experience in individuals diagnosed with schizophrenia. They used a research paradigm where observer ratings of expressive behaviour were compared with self reports of emotional experience when watching emotionally arousing film clips. It was found that individuals diagnosed with schizophrenia were observed to show fewer positive facial expressions during happy films and fewer negative facial expressions during sad or frightening films in comparison to healthy controls. However the self reports of individuals diagnosed with schizophrenia suggested they experienced similar (in some cases greater) levels of emotion. This study would support the view that individuals diagnosed with schizophrenia experience both positive and negative emotions but are disordered in their outward expression. In a follow up study Kring and Neale (1996) included the assessment of skin conductance to investigate the experience of emotion in individuals diagnosed

with schizophrenia. Again they found that they did not exhibit lower emotional reactivity when compared to healthy controls.

These findings of significant differences between emotional expression and experience suggest that the practice of inferring blunted affect from reduced expression is invalid. As noted above individuals with psychosis report a full range of both positive and negative emotions (Suslow, Roestel, Ohrmann and Arolt, 2003). Neale, Blanchard, Kerr, Kring and Smith (1998) suggest that reduced expression of affect may in fact mask a turbulent emotional interior.

Difficulty with the expression of emotions can have significant implications in terms of social communication (Ellgring and Smith, 1998) despite this not being a reflection of underlying diminished emotional experience. Subtle differences in emotional expression have been found in individuals diagnosed with schizophrenia. For example, a reduction in upper facial movements gives the impression of less social orientation (Ellgring and Smith, 1998) while the increased displays of negative affect prevents social interactions from serving a reassuring function and may make interactions less pleasurable for the social partner (Ellgring and Smith, 1998).

It has been proposed that the reduced expression of emotions in individuals who experience psychosis may reflect a need to control overwhelming sensory overload stemming from a cognitive deficit which does not allow individuals who experience psychosis to ignore redundant information (Ellgring and Smith, 1998). It has also been hypothesised that the reduction in emotional expression found in some

individuals who experience psychosis stems from attempts to protect the self from the social partner's emotional expressions to which the individual may be especially sensitive (Buck, Goldman, Easton, and Norelli Smith, 1998). These proposals of coping with sensory overload can be seen to have similarities with possible explanations for anhedonia (Blanchard, 1998) and can also be seen to be related to Hemsley's (1996) model of distorted integration of sensory inputs and memories.

These findings suggest that emotional disturbance may play both a contributory and maintaining role in positive symptoms of psychosis and highlight the importance of considering emotional difficulties in relation to furthering our understanding of psychosis.

Geekie's (2004) research, based on grounded theory, into clients' understanding of their psychotic phenomena has identified emotional experience as an important aspect of psychosis. Geekie (2004) used grounded theory to study his clients' understandings of their experiences of psychosis. He found that a number of clients identified emotional experiences as important causal factors in the development of their psychoses. These explanations included a general concept of 'overwhelming emotional arousal' (Geekie, 2004: 154) as well as specific emotions such as guilt, anxiety and fear. This finding adds support from the clients' perspective that it is important to consider the role of emotions in psychotic experiences.

Overall it can be seen that there is a great amount of emotional disturbance in individuals who experience psychosis, ranging from anhedonia to anxiety and

depression. Assumptions of affective blunting from reduced emotional expression appear invalid. Given the high rates of emotional disturbance in psychosis it would be useful to consider some possible explanations of these.

1.5.3. Psychological theories of emotions in psychosis

The historical separation of emotional and cognitive processes in psychosis can be viewed as detrimental to our understanding of the disorder (Bentall, 2003). Emotional disorders in psychosis are not yet well understood and resultantly few effective treatments are available (Birchwood, 2003). The presence of emotional dysfunction in psychosis has been found to increase the probability of early relapse (Johnson, 1988) and also may act as a risk factor for transition to psychosis given the high rates of emotional disturbance in the prodromal phase (Freeman and Garety, 2003). A better understanding of the role emotional dysfunction plays in psychosis may offer the possibility of other treatment options for this at risk population.

Kring, Barrett and Gard (2003) carried out a study in order to determine whether individuals with a diagnosis of schizophrenia understood/conceptualised affect in a similar way to healthy volunteers. They examined the applicability of the affective circumplex model of subjective emotional experiences developed with the general population. This model is based on 2 dimensions of emotional experience: valence (pleasure/displeasure) and arousal (for a full description of the model see Russell, 1980). The findings of this study suggest that the structure of subjective emotional experience found in the general population can be appropriately applied as a framework for understanding emotional functioning in schizophrenia.

Birchwood (2003) suggests that emotional disorders in psychosis may develop as a reaction to the psychosis itself or from developmental disturbance triggered by childhood trauma or emerging psychosis or both. Integral to the first proposal, that emotional disorders arise as a reaction to psychosis, is the individual's appraisal of their psychosis and what it means for their future and current functioning. Supporting this proposal is Haghighat's (2001) theory of stigmatisation, suggesting that individual's who have experienced psychosis may perceive themselves as shamed or socially subordinated because of their patient status.

Further evidence for the proposal that emotional disorder results as a reaction to psychosis is provided by Birchwood, Iqbal, Chadwick and Trower (2000). In this study higher rates of post psychotic depression (over 50%) were found in individuals with first episode psychosis, perhaps as a reaction to their recent diagnosis. In their second paper Iqbal, Birchwood, Chadwick and Trower (2000) further examined the appraisals of individuals who experience post psychotic depression. It was found that the individuals who developed post psychotic depression were more likely to feel humiliation, loss and entrapment in relation to their psychosis than those who did not develop depression. Rooke and Birchwood (1998) also found that perceived loss of autonomy and social role were correlated with depression in psychosis and that appraisal of entrapment had a high predictive value independent of a variety of symptom and illness variables. These findings would suggest that it is the individual's appraisal of their experience rather than the experience per se which impacts on the development of emotional disorder.

Freeman, Garety and Kuipers (2001) have also investigated the links between emotional disturbance and psychotic phenomena. They explored the associations between the contents of delusional systems and emotional experiences. They found higher levels of depression in individuals who had higher ratings of the power of their persecutor, linking with Gilbert's (1992) social ranking theory. The experience of feeling entrapped, according to social ranking theory, initiates defence mechanisms forcing the individual to yield to others leading to feelings of inferiority and self blame. Similar findings have also been reported in relation to auditory hallucinations and the perceived power of voices (Birchwood, Meaden, Trower, Gilbert and Plaistow, 2000). They also found some evidence that levels of anxiety were related to more threatening delusions again highlighting the importance of the appraisal of the psychotic phenomena. Although Freeman, Garety and Kuipers (2001) note that levels of emotional distress may be involved in the development of the content of a delusional belief system, their investigation focussed mainly on emotional distress resulting from delusions as opposed to the other way round.

Birchwood's (2003) second proposal that disorders of emotion in psychosis may result from developmental trauma suggests that the early trauma leads to dysfunctional cognitive schemata which in turn affects the individual's ability to adapt to their psychosis and its symptoms. Evidence for this proposal comes from high rates of childhood abuse found in individuals who have experienced psychosis (e.g. Greenfield, Strakowski, Tohen, Batson and Kolbrener, 1994).

Drayton, Birchwood and Trower (1998) in a study looking at attachment experience and recovery from psychosis found that individuals who had a less effective recovery style (sealing over) perceived their mother and father as less caring than those who had a more effective recovery style (integration). Further they found that 88% of individuals in the sealing over group had moderate to severe levels of depression. Drayton, Birchwood and Trower (1998) suggest that adverse early experiences in childhood may make individuals more vulnerable to negative self evaluations and increase their risk of emotional disorders in later life.

Continuity in psychotic symptoms from childhood to adulthood could suggest that adult psychosis may have it roots early in development. Poulton, Caspi, Moffitt, Cannon, Murray and Harrington (2000) found evidence of low-level psychotic phenomena in early adolescence (11 year olds) preceding first episode psychosis. Birchwood (2003) proposes that these antecedents of psychosis and social risk factors (such as deprivation and membership of marginalised groups) may effect psychological and social development leading to low self esteem and difficulty developing relationships leading to susceptibility to stress.

Emsley, Oosthuizen, Niehaus and Stein (2001) propose that anxiety symptoms in schizophrenia may be due to adverse life events, the psychotic experience itself, intoxification or withdrawal from substances, side effects of medications, or a comorbid anxiety or mood disorder.

1.5.4 Summary and integration

The literature reviewed above suggests that individuals with psychosis experience a wide range of emotions, although these have tended to be neglected possibly due to the historical divide between the neuroses and psychoses. Emotional disturbance has been found to precede psychosis (Freeman and Garety, 2003; Doherty, van Kammen, Siris and Marder, 1978), while high rates of comorbid anxiety and depression have been found in individuals who have experienced psychosis (Cosoff and Hafner, 1988; Brockington, Kendel and Wainwright, 1980; Norman, Malla, Cortese and Diaz, 1998) suggesting that psychosis is a disorder with significant affective components.

A variety of explanations have been put forward to explain emotional disturbance in psychosis ranging from emotional disturbance preceding psychosis (Birchwood, 2003) to emotional disturbance as a result of psychosis (Birchwood, Iqbal, Chadwick and Trower, 2000). Understanding of emotional disturbance in psychosis may be enhanced with a consideration of the role of emotion regulation in psychosis.

1.6. Emotion Regulation

1.6.1. Emotion or affect regulation?

The terms affect and emotion are often taken to be synonymous with each other and are frequently used interchangeably in the literature (Power and Dalgleish, 1997). While this may cause difficulties in understanding specifically what is being discussed it has been suggested that this confusion of terms is simply an indicator of

the current stage of knowledge in this area (Ellgring and Smith, 1998). For the purpose of this study however it is possible to make some working distinctions.

Affect can be conceptualised as an overarching term encompassing various valenced subjective states including moods, emotions and dispositional states which differ principally in terms of specificity and duration (Gross, 1998). It has been suggested that the term affect should be used to refer to the conscious experience of emotion (Power, in press) although this has not always been the case (Ellgring and Smith, 1998). Emotion on the other hand can be used to refer to states such as anger, happiness and sadness which tend to be related to a specific object, be relatively discrete and lead to a particular response tendency (Gross, 1998). As emotion refers to a more discreet level of subjective state than affect, it offers a useful level of analysis for investigation of the regulation of subjective states in individuals with psychosis.

Gross (1998), following an evolutionary perspective, defines emotions as 'response tendencies' which have developed in an attempt to adapt to, or solve, environmental challenges and opportunities. Different emotions have been proposed to serve different functions (Cole, Michel and O'Donnell Teti, 1994). Power (in press) suggests that it is possible to identify five basic emotions: sadness; happiness; disgust; anxiety and anger. More complex emotions such as nostalgia or contempt have been proposed to result from a combination of basic emotions (Power and Dalgleish, 1997).

The present study has reviewed literature using both the terms affect regulation and emotion regulation. Theories of emotion regulation currently appear to be more clearly operationalized in the form of measures and this therefore provides a basis for investigating these processes in individuals who have experienced psychosis.

1.6.2. Definition of emotion regulation

Over the past few decades the domain of emotion regulation has developed as a distinct field of psychological theory and research (Gross, 1998). Aspects of emotion regulation have however been around for quite some time and can be seen to influence many psychotherapeutic approaches (Cole, Michel and O'Donnell Teti, 1994). The literature regarding emotion regulation in psychosis is sparse, although there has been some work in dual diagnosis groups (Blanchard, Brown, Horan and Sherwood, 2000). Before considering current understandings of emotional regulation in psychosis it may be useful to review the overall concept and models of emotion regulation.

Gross (1998) defines emotion regulation as a broad construct that covers a range of processes that may be conscious or unconscious, automatic or controlled. In essence emotion regulation, as defined by Gross (1998), refers to the processes by which individuals shape the emotions they experience in terms of which emotions they experience, when they experience them and how they express them.

Thomson (1994) expands this definition by highlighting the goal-oriented, functional nature of emotion regulation in terms of achieving desired emotional outcomes and

broader goals. He further adds that emotion regulation processes can be both internal (e.g. reinterpreting events) and external (e.g. obtaining sympathy from others) to the individual and stipulates that in order for effective emotion regulation to occur the individual must first possess the ability to access and evaluate their emotions accurately.

Emotion regulation should not be considered simply as a matter of increasing the experience or expression of positively valenced emotions or decreasing the experience or expression of negatively valenced emotions (Cole et al., 1994). Regulation of both positively and negatively valenced emotions may lead to changes in a variety of aspects such as latency, magnitude, duration, expression and behavioural responses (Gross, 1998)

Emotion regulation can be seen to have its roots in the psychoanalytic as well as the stress and coping traditions (Gross 1998, 1999). Psychoanalytic theory places much of its emphasis on conflict between biological impulses and their restraint (especially in relation to negative emotions). According to psychoanalysts aversive emotions are managed through the use of ego defences, it is the use of maladaptive ego defences to regulate emotions which is seen to be at the heart of psychopathology. Emotion regulation theorists share psychoanalytic concerns in relation to impulse regulation although also focus on understanding the full range of normal functioning as well as psychopathology (Gross, 1999).

The concept of emotion-focussed coping, developed by stress and coping theorists, has particularly influenced emotion regulation theories (Gross, 1999). At the core of the stress and coping tradition is the tenet that individuals exhibit similar responses to a wide variety of stressors, suggesting a particular 'coping style', this can be seen to be reflected in emotion regulation theory although the focus here is on specific emotions as opposed to the broader category of stress (Gross, 1998). Another similarity between emotion regulation and coping theory is the concept of influencing situation variables and emotional responses (such as avoiding certain situations or the use of distraction) as a means to minimise negative outcomes or facilitate preferred ones. Emotion regulation theory can be seen to be related to coping although is not entirely encapsulated by this broader category (Gross, 1998).

Gross (1999) highlights that emotion regulation can be an ambiguous term referring to the regulation of emotions themselves or to the regulating functions emotions may serve. For the purposes of this study the term emotion regulation shall be used to refer to the regulation of emotions themselves. A further distinction can be made between emotion regulation in the self or in influencing the emotions experienced by others. Emotion regulation in this study will be used to refer to the regulation of emotion in the self, although this may take place in an interpersonal context. Emotion regulation will also be used to refer to a continuum of processes ranging from automatic/non-conscious activities to controlled/conscious strategies.

1.6.3. Development of emotion regulation

Emotion regulation can be viewed as an important developmental task which has its roots in early infancy (Calkins, 1994). Emotion regulation develops as the result of interactions between internal and external factors taking place over a number of years (Thomson, 1994). When considering the development of emotion regulation skills it is important to bear in mind the individual factors that can impinge upon or enhance their development. Calkins (1994) suggests a number of factors which may affect the development of emotion regulation skills: these include factors internal to the infant, such as neuroregulatory systems, behavioural traits and cognitive style, and external factors such as parenting style/practices. Caregivers are viewed as playing a crucial role in the development of emotion regulation, initially by providing regulation through actions such as soothing progressing towards modelling of emotion regulation strategies, such as distraction (Calkins, 1994). The development of emotion regulation can therefore be conceptualised as an interactive process through a combination of experiences of having one's emotions responded to and managed by caregivers and observing how other's regulate their own emotions (Calkins, 1994), although the processes through which these developments occur are not currently well understood (Cole, Michel and O'Donnell Teti, 1994). During the development of self regulation an emotional regulation style may develop into a more stable characteristic which is less amenable to change (Thomson, 1994).

It can be seen that the understandings of the development of emotion regulation are similar to concepts of attachment theory: where aspects of the caregiving relationship are internalised as working models for future relationships (Bowlby, 1988). For

example a key factor in the development of emotion regulation is the beliefs and expectancies the infant holds about their own and their caregiver's abilities to cope with and adapt to their emotions (Calkins, 1994). This internal model then impacts on future emotion regulation strategies by influencing self-regulatory and interpersonal behaviour (Calkins, 1994).

Thomson (1994) defines optimal emotion regulation in terms of outcome (e.g. emotions being sufficiently under control to allow for interpersonal functioning) and process (e.g. enlisting appropriate flexible strategies while allowing access to the broad range of emotions) although notes that what is optimal may vary for different individuals, in different situations, with different goals. Calkins (1994) highlights the importance of effective emotion regulation for successful interpersonal functioning. The development of optimal emotion regulation is likely to occur in the backdrop of a close match between the infant's emotional needs at different developmental stages and the caregivers' ability to identify and meet those needs (Calkins, 1994).

Emotion dysregulation, on the other hand, can be defined, not as an absence of regulation, but as the use of inflexible strategies which may have served a specific function, but now interfere with social, cognitive or interpersonal functioning (Cole et al., 1994). The development of emotional dysregulation may be more likely to occur in an environment where there has been a lack of consistent appropriate intervention when the emotional demands of situations exceed the infant's ability to self regulate (Cole et al., 1994). Once emotional dysregulation has developed as a stable characteristic it may be considered as a vulnerability factor in developing

psychopathology due to dysregulation of social and cognitive processes (Cole et al., 1994).

1.6.4. Emotion regulation models

Models which have been proposed to outline the processes involved in emotion regulation vary as to whether they focus on the types of resources the strategy uses and at which point in the emotion generation process the strategies are employed (Gross, 1998; 1999).

Eisenberg and Fabes (1995) focussed on the types of resources used and identified three types of emotion regulation processes. Cognitive strategies were identified, e.g. cognitive restructuring, in which the emotion experienced was moderated by the interpretations made of the situation. Behavioural strategies, such as seeking support, were identified in which the behaviour reflected an attempt to cope with the experience of emotion. The final strategies identified were situational, for example attentional control, in which the situation was modified in some way as a reaction to the initial emotion arousal. These strategies identified by Eisenberg and Fabes (1995) could be seen to occur at varying points in the emotion arousing experience.

Gross and Munoz (1995) take a different approach to understanding emotion regulation processes and focus on the stage in the emotion generation process at which they are employed. They propose two broad types of processes: antecedent-focussed and response-focussed. Antecedent-focussed emotion regulation relates to the strategies employed to modify the factors that elicit the emotion prior to it being

experienced, these can include visiting friends or altering appraisals of the environment. Response-focussed emotion regulation relates to the strategies employed to modify the experience of an emotion while it is being experienced, for example masking feelings of sadness. Gross and Munoz (1995) view these processes as likely to be reciprocal in nature highlighting the dynamic nature of emotion regulation. However they suggest that antecedent-focussed strategies are more likely to be effective overall as they modulate both the experience and expression of the emotion whilst response focussed strategies are employed following the experience of emotion and can only impact upon its expression, with limited impact on the subjective experience of the emotion. This suggestion appears to make intuitive sense as strategies which occur earlier on in the emotion generation process are likely to have greater impact than those which occur during the latter stages in the process.

This suggestion has been supported by subsequent research by Gross and Levenson (1997) investigating the effects of emotional inhibition. They found that response-focussed strategies, specifically suppression, did not significantly reduce the subjective experience of negative emotions. They did find however that in relation to positive emotions suppression tended to reduce the intensity of the emotion experienced. Gross and Levenson's (1997) findings suggest that response-focussed emotion regulation, specifically suppression, does not alleviate the subjective experience of negative emotions however this is not to suggest that it would not be useful in certain situations. Response-focussed strategies are crucial where antecedent-focussed strategies are not available or ineffective and the individual needs to inhibit their emotional expression.

The antecedent/response-focussed model has been further elaborated by Gross (1998) who has identified five sets of emotion regulatory processes. This model proposes four forms of antecedent-focussed emotion regulation and one form of response-focussed emotion regulation:

1. Situation Selection

The first antecedent-focussed strategy is situation selection; this strategy involves avoiding or approaching certain people or places based on an appraisal by the individual of the potential emotion arousing features of the situation, their likely reaction to the situation and the costs and benefits involved.

2. Situation Modification

The second antecedent-focussed strategy is situation modification; this involves active attempts to modify some aspect of the situation such as its consequences and emotional impact. This strategy can be seen to be similar to the concept of problem-focussed coping (Lazarus and Folkman, 1984). Gross (1998) notes that the boundaries between situation selection and modification are not always clear as efforts which modify a situation may ultimately result in a new situation. He also notes that emotion expressions can perform an important modification role for example where a sad expression changes an angry interaction.

3. Attentional Deployment

The third antecedent-focussed strategy is attentional deployment; this involves directing attention away from or towards particular aspects of the situation. An

individual may use distraction to divert attention from emotion arousing aspects of the situation, concentration to focus on particular emotive aspects (such as in method acting) or rumination in which the attention is focussed directly on the feelings themselves.

4. Cognitive Change

The fourth and final antecedent-focussed strategy proposed by Gross (1998) is cognitive change; this involves the evaluations made by the individual regarding the meaning of the situation and their ability to cope with it. The preliminary appraisal an individual makes about a situation may be modified through reappraisal, denial or re-framing.

5. Response Modification

The response-focussed emotion regulation strategy proposed by Gross (1998) is response modification; this involves direct modification of physiological, experiential or behavioural responses. Response modification strategies are employed in the later stages of the emotion generation process. Physiological responses can be altered through the use of relaxation (in anxiety or anger inducing situations) or taking drugs, both prescribed and illicit, which can modify physiological responses as well as impacting upon cognitive elements of an emotion. Gross (1998) suggests that perhaps the most common form of response modification is behavioural. Behavioural inhibition has been found to decrease the experience of some emotions (e.g. amusement) although not others (e.g. sadness) (Gross and Levenson, 1997).

While Gross (1998) acknowledges that "our theoretical and empirical grasp of emotion regulation is still quite uncertain" (Gross 1998: 288) this model may offer a useful framework in a relatively young field.

Cole et al. (1994) take the view that emotions are inherently regulated and regulatory. Gross (1998) suggests that questioning whether emotions are regulated or not is misleading as this suggests that emotion regulation is an all or nothing process, instead he suggests that it is more appropriate to consider the degree to which emotions are regulated. Another important consideration highlighted by Gross (1998) is that the processes involved in the regulation and generation of emotions are likely to be greatly interwoven. He therefore suggests caution in inferring emotion regulation from observations alone.

Another important consideration for emotion regulation theorists is whether emotion regulation strategies can be considered as functional or dysfunctional. It is likely that different emotion regulation strategies will be functional in some situations and not in others. Gross (1998) notes that no emotion regulation strategy in itself can be considered functional or dysfunctional without taking into consideration the context in which it was employed. However, some individuals may display tendencies towards particular types of emotion regulation strategies: this may result in an emotion regulation style that could be classified as generally functional or dysfunctional. Thomson (1994) suggests the use of outcomes, such as the ability to control emotions sufficiently for interpersonal relatedness, to assess functionality.

Phillips (2005) proposes that individual emotion regulation strategies may be considered as generally functional or dysfunctional in relation to their relationship with acceptance of emotions. This proposal distinguishes between emotion regulation strategies which signify acceptance of the emotion and the meaning of that emotion and those which indicate rejection of the emotion and its meaning, the latter resulting in the functional value of the emotion being neglected. This distinction between functional and dysfunctional emotion regulation processes forms the basis of the Emotion Regulation Questionnaire-2 (originally the Child and Adolescent Emotion Regulation Questionnaire, CAERQ) (Phillips, 2005), the only identified measure which assesses functionality.

When considering emotion regulation it is important not to ignore the role of individual and cultural beliefs. Individuals and cultures display a wide variability regarding how, when and to what extent emotions should be regulated. Therefore any discussion of emotion regulation and the functionality of emotion regulation should acknowledge the contextual nature of this concept. Indeed, as highlighted by Thomson (1994), an individual's emotional development is likely to be highly influenced by the socialisation of emotion to which they were exposed.

1.6.5. Emotion regulation in psychosis

No published empirical studies were found which directly studied emotion regulation processes or strategies in psychosis. Numerous studies (reviewed above) have highlighted emotional disturbances in psychosis as well as differences in emotional expression and experience. These findings could be understood in relation to emotion

regulation processes. They may suggest that individuals who experience psychosis have poorer functioning emotional regulation systems or that the increased demands placed on the systems in a context of psychosis cause them to work less effectively. Given the dearth of research in the area it is not possible to determine which, if either, of these suggestions is empirically well supported.

Ellring and Smith (1998) propose that in psychosis the affective regulation systems are focussed on internal regulation, as opposed to social regulation, and the individual's resources are directed towards internal regulation. This over absorption with internal events precludes social regulation as the individual is no longer attending to external stimuli. The individual is therefore unable to make use of affect regulation from social encounters and has to rely purely on self generated affect regulation (Ellring and Smith, 1998).

Emotion regulation theories may offer a possible explanation for the differences found between emotion experience and expression found in individuals who have experienced psychosis (Kring and Neale, 1996). The reduced emotional expression found in individuals who have experienced psychosis may reflect emotion regulation strategies as opposed to a deficit in expression (Buck, Goldman, Easton, and Norelli Smith, 1998). In order to regulate their emotions individuals who have experienced psychosis may suppress their emotional expressions. If this were the case it could account for the findings of reduced expression and also the findings of reduced positive emotions and increased negative emotions in psychosis. Gross and Levenson (1997) found that the use of emotional suppression reduced the experience of

positive emotions but not negative ones, this strategy is likely therefore to lead to greater negative emotional experiences. This style of emotion regulation may generate a vicious circle in which negative emotions are unregulated by suppression while positive emotions are reduced therefore increasing negative emotional experiences and the outward expression of flat affect.

Blanchard, Brown, Horan and Sherwood (2000) have suggested that the high rates of substance abuse found in individuals who have experienced psychosis may reflect a form of affect regulation. They note that the most common reasons reported by those who have experienced psychosis and abuse substances are to decrease low mood, anxiety and tension. Negative affectivity, a trait found in the general population, has been highlighted by Blanchard et al. (2000) as an important factor in substance abuse in individuals who have experienced psychosis. Negative affectivity is associated with increased experience of general negative mood states, a lower tolerance for the experience of these and a lower tolerance for stress. It is proposed that individuals with high negative trait affectivity are more likely to experience negative mood states and to be less tolerant of these and will therefore attempt to regulate their affective experience. Blanchard et al. (2000) suggest that individuals with high trait negative affectivity may be more likely to attempt to regulate emotions through substance abuse. They go on to suggest that individuals who experience psychosis are more prone to trait negative affectivity.

1.6.6. Summary and integration

The literature reviewed above shows that while emotion regulation is developing as a field of psychological theory and research (Gross, 1998) little has been written about emotion regulation in relation to psychosis. Emotion regulation can be understood as the processes by which an individual shapes their emotional experience and expression (Gross, 1998). Links can be drawn between the psychodynamic concept of ego defences and emotion regulation, although emotion regulation theorists do not focus solely on psychopathology (Gross, 1999). Models of emotion regulation vary as to whether they focus on the stage in the emotion generation process strategies are employed or on the types of resources used.

Although no published research was identified which directly studied emotion regulation in psychosis numerous studies have highlighted emotional disturbances in psychosis (see Section 1.5.2). These findings may point to difficulties in emotion regulation in individuals who experience psychosis. Ellring and Smith (1998) suggest that individuals who experience psychosis direct all their resources towards internal regulation precluding social regulation. While Buck et al. (1998) suggest that the reduced emotional expression found in individuals who experience psychosis may reflect the emotion regulation strategy of suppression. Blanchard et al. (2000) have suggested that the increased substance use found in individuals who experience psychosis may reflected their attempts to regulate their emotions.

Given the limited research in this area this study aims to explore issues of emotional regulation in psychosis. As suggested earlier psychosis can be viewed as a continuum

in a similar way to other mental health problems, it may be possible therefore that emotion regulation strategies may also form a continuum whereby healthy individuals have greater capacity to regulate their emotions and those with mental health problems have greater difficulty regulating their emotions. The ability to regulate emotions may be related to the amount of strategies utilised or to the functionality of the strategies used. This study seeks to better understand the emotion regulation process in individuals who have experienced psychosis in comparison with individuals with a mood or anxiety disorder who have not experienced psychosis and with individuals who have not experienced any mental health problems.

As highlighted by Freeman and Garety (2003) it is highly unlikely that a single cause for psychosis is going to be found therefore research aimed at identifying contributory factors may prove more fruitful than attempts to identify a single common cause for symptoms of psychosis. This study therefore aims to explore emotion regulation as a potential contributory factor in psychosis.

1.7. Coping

If individuals who experience psychosis have difficulties with the regulation of their emotions it may follow that they find coping with day to day stressors difficult as they may experience greater levels of emotional dysfunction which may impinge on their coping abilities. Before looking at coping in individuals who experience psychosis, it may be useful to briefly summarise some theoretical aspects of coping in general.

"Coping is a multifaceted and potentially overinclusive construct" Meyer (2001: 274). Over the last few decades there has been a vast amount written about coping and stress (Carver, 1997) with many questions, such as how best to measure coping, remaining unanswered.

Much of the literature on coping can be traced back to Lazarus' (1966, also Lazarus and Folkman, 1984) model of stress and coping. Lazarus proposed that stress can be broken down into three processes: primary appraisal which consists of the perception of threat to oneself; secondary appraisal which consists of identifying potential responses to the threat and the third process, coping, which involves the implementation of the response. While these processes appear linear at first they may involve a number of feedback loops which necessitate the cycle being repeated (Lazarus, 1966). For example, the realisation of an immediately available coping response may reduce the initial appraisal of threat while the opposite may also occur, where an individual initially appraises the situation as unthreatening but due to a failed coping attempt may reappraise the threat as greater. The process could then be viewed as cyclical.

To allow further investigation of the coping process Folkman and Lazarus (1980) developed the Ways of Coping scale. This scale draws a distinction between problem-focussed coping and emotion-focussed coping. Problem-focussed coping is aimed at altering the source of the stress or problem solving a response while emotion-focussed coping is aimed at altering the distress associated with the situation. Folkman and Lazarus (1980) suggest that while both types of coping can

often be found in relation to most stressors, problem-focussed coping is more often employed when there appears to be something constructive that can be done in the situation while emotion-focussed coping is more often employed when the stressor is appraised as something which has to be tolerated.

The distinction between problem-focussed coping and emotion-focussed coping has proven to be too simplistic (Carver, Scheier and Weintraub, 1989). It has been suggested that the diversity of responses involved in emotion-focussed coping, such as denial, positive reinterpretation and seeking social support cannot be accounted for by one factor and that these responses may represent very different levels of successful coping (Carver, Scheier and Weintraub, 1989). Meanwhile problem-focussed coping can be viewed as involving a number of different processes ranging from planning, to taking action, to seeking out assistance, all of which need to be assessed individually in order to elucidate their adaptive value (Carver, Scheier and Weintraub, 1989).

1.7.1. Measurement of coping

Carver, Scheier and Weintraub (1989) carried out a survey of coping measures and identified 3 main issues. Firstly none of the measures they identified covered the range of areas they felt were of theoretical interest, secondly they felt the scales tended to lack clear focus highlighted by items which were ambiguous, gave no indication of why a particular response was being employed and combined conceptually distinct qualities and thirdly they noted that for the most part the scales had been developed empirically rather than theoretically. They therefore developed a

more theoretically driven measure (The COPE) guided by Lazarus' (1966) conceptualisation of stress and coping and a model of behavioural self-regulation developed by Scheier and Carver (1988), while also including other aspects of coping which had been found important in previous studies.

The COPE is a 60 item questionnaire with 4 items per scale however within each scale the item content has considerable redundancy (Carver, 1997). Participants completing this questionnaire have been found to become impatient with its length and also the redundancy of some of the items (Carver, Pozo, Harris, Noreiga, Scheier, Robinson, Ketcham, Moffat and Clark, 1993) therefore Carver (1997) decided to develop a briefer form of this scale (The Brief COPE). The Brief COPE (Carver, 1997) (Appendix 6) is a 28 item questionnaire covering 14 theoretically derived coping strategies, table 1.1 shows the scales measured by this instrument.

Table 1.1 Scales included in The Brief COPE (Carver, 1997)

Scale	Description
1. Active Coping	Taking active steps to deal with the situation, similar to Lazarus' (1966) problem-focussed coping
2. Planning	Thinking about possible responses to a stressor, occurs during Lazarus' (1966) secondary appraisal phase
3. Positive Reframing	Thinking about the situation in more positive terms to help reduce the distress associated with the stressor
4. Acceptance	Accepting the reality of the situation or accepting being unable to change the situation immediately
5. Humour	Making jokes about the situation
6. Religion	Turning to religion at times of stress, either for emotional support or positive reframing
7. Using Emotional Support	Seeking out moral support or sympathy
8. Using Instrumental Support	Seeking out advice or assistance
9. Self-Distraction	Distracting oneself from the distress associated with the stressor by focussing on other activities
10. Denial	Denying the reality of the situation
11. Venting	Venting feelings of distress related to the stressor
12. Substance Use	Using alcohol or drugs to reduce distress
13. Behavioural Disengagement	Reducing efforts or giving up trying to deal with the stressor
14. Self-Blame	Blaming or criticising oneself

There is no single measure that covers all possible areas of coping and even if one were developed it is likely to increase participant response burden to such an extent that it makes research projects unwieldy. The Brief COPE (Carver, 1997) can be seen to include a broad variety of coping strategies, adaptive and maladaptive as well as problem-focussed and emotion-focussed and may be most useful when one wants to have an overview of the coping strategies most often utilised by participants. It can also be used situationally and dispositionally, dependent on the focus of the research.

1.7.2. Coping in psychosis

The use of coping strategies in psychosis has not been comprehensively studied and much of the research has focussed on individuals with diagnoses such as schizophrenia (MacDonald, Pica, McDonald, Hayes and Baglioni, 1998). As will be demonstrated by the following review much of the research into coping in individuals who experience psychosis has focussed on how they cope with factors related to their psychotic symptoms.

Meyer (2001) notes that the challenge of coping for individuals who experience psychosis is twofold in that they have to cope with the experience of their symptoms as well as the broader implications for their personal and social lives and roles. Meyer (2001) compared coping in individuals with a diagnosis of schizophrenia with individuals with affective disorders and found that those with a diagnosis of schizophrenia were less likely to cope adaptively (utilising strategies such as acceptance, active coping, planning and emotional support seeking) although they were no more or less likely to utilise maladaptive coping strategies (such as denial, disengagement, self-blame and venting). Meyer (2001) found that psychological wellbeing was positively correlated with adaptive coping and negatively correlated with maladaptive coping. Deficits in adaptive coping were found to mediate schizophrenic symptom severity and concurrent social functioning. Meyer (2001) suggests that this means that those with more severe symptoms functioned less well socially as a result of being less able to cope rather than as a function of their symptoms per se.

Falloon and Talbot (1981) carried out a study to investigate coping strategies in individuals who regularly heard voices. They asked 40 participants to describe the coping strategies they used for dealing with their voices. They found 3 main areas in which participants made changes in order to cope with their voices: behaviour, sensory/affective state and cognition. Behaviourally participants described changing their posture (lying down or walking), increasing activity and increasing interpersonal contact. In relation to arousal levels participants reported using methods both to decrease and increase arousal level. For example to decrease arousal levels participants described using relaxation, sleeping, using ear plugs and covering their eyes, while others described increasing arousal through physical exercise, listening to loud music and pacing. Cognitive coping methods identified were attentional control, such as ignoring voices or actively listening to them, controlling the onset of voices and suppression, some participants noted that they accepted their voices and reflected upon and used their guidance. The types of coping strategies used were found to be similar in groups of patients diagnosed with and without affective components to their illness. They found that those who appeared to be coping better used fewer strategies, which, although not differing qualitatively from the strategies used by those who coped less well, were applied more consistently and with greater confidence. They also noted that those who tended to cope better with their voices often avoided situations or stimuli which were associated with the onset of their hallucinations.

Farhall and Gehrke (1997) also carried out a study to investigate coping in 81 individuals who experienced hallucinations. They looked at general as well as

hallucination-specific strategies. The most common general strategies used were taking action about the problem, mental disengagement, behavioural disengagement and decreasing physiological arousal, the most common hallucination-specific strategy identified was interacting with the voice. In a factor analysis they identified 3 factors accounting for 32% of the variance, these were 'active acceptance' (listening to and accepting voices), 'passive coping' (reliance on external support) and 'resistance coping' (action directed against voices). They found that passive coping predicted emotion control and that resistance control negatively predicted emotion control.

A further study which investigated coping with hallucinations was carried out by Singh, Sharan and Kulhara (2003). They looked at the coping strategies used by 75 individuals diagnosed with schizophrenia. They found that help seeking strategies were used most frequently followed by coping through diversion. Each participant reported using on average 1 problem-solving coping strategy whilst coping through avoidance was least common. They found overall that participants with higher distress scores tended to use a greater number of coping strategies and suggested this may be due to them experiencing greater distress and therefore attempting to cope with that distress or that this may highlight the ineffectiveness of the strategies they were employing.

The studies aimed at understanding coping with symptomatology appear to suggest that individuals who experience psychosis are less likely to utilise what could be considered adaptive coping strategies than those with affective disorders. The

research also suggests that those who are functioning better tend to utilise fewer coping strategies, although it is unclear whether that is because they are using more effective coping strategies or are less distressed to begin with. It would also appear that help seeking strategies are commonly used in individuals who experience psychosis.

Strous, Ratner, Gibel, Ponizovsky and Ritsner (2005) investigated coping at exacerbation and stabilisation phases in schizophrenia. They found that emotion-orientated coping strategies were used more often at the exacerbation phase of illness, when higher levels of distress were apparent. The amount of task or avoidance oriented coping strategies did not change from exacerbation to stabilisation. They found a strong association between level of distress and the use of emotion orientated coping strategies. Emotion orientated coping may be less adaptive/effective than task orientated coping, which is more problem solving in nature and therefore may be related to levels of distress as the person attempts coping strategies which then fail. Equally the high association between distress and emotion orientated coping may reflect high distress levels leading to increased efforts to control emotions.

The finding of higher levels of emotion orientated coping at exacerbation of illness may be related to the emotion regulation literature. If an individual struggles to regulate their emotions this may be reflected in greater attempts to cope with their distress through emotion orientated coping strategies, also it is likely that emotion

dysregulation is linked to maladaptive emotion regulation strategies which may be related to the failure of emotion orientated coping strategies.

MacDonald, Pica, McDonald, Hayes and Baglioni (1998) carried out a study looking at coping strategies in psychosis for a range of stressful situations (symptom related, relationship difficulties and everyday functioning). They compared a group of 50 individuals with early psychosis with a matched group without psychiatric diagnosis. They found that the psychosis group used a smaller range of coping strategies than the non-clinical group and did not perceive themselves as coping with stressors as well as the non-clinical group. The participants in the psychosis group were found to use more emotion focussed coping strategies than the non-clinical group. MacDonald et al. (1998) suggest that the use of emotion focussed coping strategies in the psychosis group may be consistent with the recovery style of 'sealing over' (McGlashan, 1987), whereby individuals isolate their psychotic experiences in order to reduce the distress associated with them.

MacCarthy, Benson and Brewin (1986) carried out a study into coping in long-term psychiatric patients, comprising mainly of individuals with a diagnosis of schizophrenia. These participants reported finding greater difficulty in coping with stressors which they found most distressing. They noted that the participants had few ideas about how to cope with the difficulties they experienced and that their efforts often appeared to lack a clear focus. It is unclear from this study whether the participants found certain problems in themselves more distressing than others or

whether being unable to identify possible strategies for dealing with the problems caused greater levels of distress.

Van den Bosch, Van Asma, Rombouts and Louwerens (1992) investigated general coping style in schizophrenia. They found that alongside depression and neurosis groups, the schizophrenic group rated themselves higher on depressive reaction and lower on problem solving in comparison to healthy controls. They also found that participants in the schizophrenic group were more likely to endorse items related to avoidance. They did not find any evidence for cognitive functioning impinging on coping abilities however they did find that subjective experience of cognitive difficulties, such as distractibility, was related to coping. Overall this study found that the participants diagnosed with schizophrenia did not rate themselves significantly different from depressive and neurosis groups with regard to coping dimensions.

Horan and Blanchard (2003) compared coping in 36 individuals diagnosed with schizophrenia to 15 non-psychiatric controls. They found that the schizophrenia group was characterised by more common use of maladaptive coping strategies. They further found that maladaptive coping, together with trait negative affectivity, accounted for approximately 25% of the variance in negative mood during a role play task involving assertion. This finding suggests it is important to consider the role of trait factors and coping in subjectively experienced stress in individuals who have experienced psychosis.

Myin-Germeys, Krabbendam, Delespaul and Van Os (2003) have suggested that individuals who experience psychosis may have heightened emotional reactivity to everyday life stressors. In their study of 42 individuals who had experienced psychosis they found that while a history of life events did not significantly increase the subjective stressfulness of daily events they did appear to increase emotional reactivity to everyday life stressors. They therefore suggest that life events influence an underlying vulnerability for psychosis through the increase in emotional reactivity to everyday stressors. Given that previous research has found that difficulties which are more distressing are related to more maladaptive coping strategies (MacCarthy, Benson and Brewin, 1986) the finding of greater emotional reactivity to daily stressors could suggest that individuals who have experienced psychosis are more likely to become distressed by everyday events and cope with them in a less adaptive fashion.

1.7.3. Summary and integration

While the above studies have focussed on slightly different aspects of coping with everyday stressors they overall appear to suggest that individuals who experience psychosis exhibit a smaller range of coping strategies and find it more difficult to identify coping strategies for the difficulties which they find most distressing. The research also suggests that individuals who experience psychosis use more emotion focussed coping strategies, more avoidance and less problem solving strategies. The findings of heightened emotional reactivity to everyday stressors in individuals who have experienced psychosis could suggest that they are more likely to become

distressed when faced with everyday stressors and to cope with them in a less adaptive manner.

This study aims to better understand the experience of individuals who experience psychosis compared with those with anxiety/mood disorders and the general population, the focus therefore will be on how individuals cope with day to day life stressors which everyone may experience as opposed to symptom specific stressors.

1.8. Rationale for the present study

The literature reviewed has shown that, contrary to Kraepelinian ideas, individuals who have experienced psychosis also experience a wide range of emotions, although to date emotion regulation processes or strategies in psychosis are poorly understood. In order to develop effective treatments for the wide range of difficulties reported by those who experience psychosis it is essential to gain a better understanding of the role of emotions and emotion regulation in psychosis.

Based on the research reviewed it is reasonable to conceptualise psychosis as a disorder with significant affective elements, which may be understood in a similar way to anxiety/mood disorders. This conceptualisation would suggest that individuals who experience psychosis are likely to have difficulties with the regulation of their emotions in a similar way to those with anxiety/mood disorders. What is currently largely unknown is the extent to which individuals who experience psychosis have difficulties with the regulation of their emotions. As noted earlier it is unlikely that any one single cause will be found to explain the occurrence of

psychosis however it is possible to consider potential contributory and maintaining factors, of which emotion regulation may be one. The focus of the present research study is then on emotion regulation in psychosis in comparison with anxiety/mood disorder and healthy controls.

This exploratory study can be placed within the broader context of increasing interest being paid to emotional functioning in psychosis (Bentall, 2003). The theories and research studies described above have highlighted several ways in which emotional experience and expression in psychosis differs from the general population, however they also point to the possibility of emotional experience in psychosis lying on a continuum with other affective disorders. This continuum is likely to be related to effective or ineffective emotion regulation strategies. The ability or inability to regulate emotions may also be reflected in an individual's general coping style. If they experience high levels of emotional disturbance they may be more likely to use emotion focussed coping strategies and may also use less effective strategies due to their high concurrent levels of distress.

In assessing emotion regulation, emotional experience and coping in psychosis it is important to consider the following questions which will be addressed in this thesis:

- Do individuals who experience psychosis show similar levels of emotional disturbance as those with anxiety/mood disorders and are these greater than the general population?
- Do individuals who experience psychosis have similar difficulties with the regulation of their emotions as those with anxiety/mood disorders and are these greater than the general population?

- Do individuals who experience psychosis and individuals who have anxiety/mood disorders use less adaptive coping strategies when faced with day to day life stressors?

The aim of this study then is to examine these questions by measuring emotional experience, emotion regulation and coping and comparing these for three groups of individuals: one group comprising of individuals who have experienced psychosis, one group comprising of individuals with anxiety/mood disorders who have not experienced psychosis and a group of healthy controls.

In relation to the question concerning difficulties with emotion regulation, this requires some consideration in terms of how difficulties with emotion regulation may be operationalized. Gross and Levenson (1997) have suggested that response-focussed emotion regulation strategies are less effective than antecedent-focussed strategies in modifying an individual's experience of negative emotions, given that they are employed once the emotion has been generated. For the purposes of this study emotion regulation which is characterised by a greater use of response-focussed strategies will be considered to reflect difficulties with emotion regulation. The only currently available measure which allows for distinction between antecedent and response-focussed strategies uses expressive suppression to characterise response-focussed emotion regulation. This study will therefore assess whether the clinical groups tend to use this response-focussed strategy to a greater extent than the healthy controls.

It has been proposed that individuals develop a stable style of emotion regulation (Thomson, 1994). If an individual is characterised by using a less effective emotion regulation strategies, such as response-focussed ones, it may follow that they also use less functional strategies to regulate their emotions as part of a broader pattern of dysfunctional emotion regulation. As with antecedent/response- focussed strategies there is only one currently available measure which operationalizes functional and dysfunctional emotion regulation strategies (Phillips, 2005) which shall be used to evaluate these questions.

1.9. Research question and hypotheses

The primary research question of this study can be summarised as follows:

Is there a significant difference in emotion regulation between groups of individuals who have experienced psychosis, who have an anxiety/mood disorder and have not experienced psychosis and healthy volunteers?

The research hypotheses are as follows:

1. Individuals who experience psychosis and individuals who have an anxiety/mood disorder who have not experienced psychosis will attempt to regulate their emotions in similar ways and that this will differ from healthy volunteers.

2. The current emotional state of individuals who experience psychosis will be similar to that of those who have an anxiety/mood disorder who have not experienced psychosis and that this will differ from healthy volunteers.

3. The general emotional state of individuals who experience psychosis will be similar to that of those who have an anxiety/mood disorder who have not experienced psychosis and that this will differ from healthy volunteers.

4. Individuals who experience psychosis will use similar coping strategies as individuals with an anxiety/mood disorder who have not experienced psychosis and that this will differ from healthy volunteers.

Chapter 2: Methodology

2.1. Design

A quantitative methodology was adopted as most appropriate to the research question. The research used a between-groups design and was based on an opportunity sample of patients attending clinical psychology departments. Individuals were allocated to groups on the basis of whether they had experienced symptoms of psychosis (psychosis group) or had an anxiety or mood disorder (anxiety/mood group) and had not experienced psychosis. The control group (individuals who were not receiving psychological intervention) consisted of an opportunity sample of colleagues, co-workers and acquaintances.

2.2. Power analysis

In order to establish the number of participants required in each group a prospective power analysis was carried out (Clark-Carter, 2004). There was no data available which may have indicated the expected effect sizes of the between group differences on the relevant variables. Therefore, the effect size considered to be of interest was used in these calculations. This was set at a large effect size of $d = 0.8$ as large between-group differences were considered to be of clinical import. Based on these parameters, it was established using power tables in Clark-Carter (2004) for power = 0.8 and $\alpha = 0.05$ to have 21 participants in each group for the use of ANOVA in the analyses.

2.3. Participants

Three groups of participants were recruited for this study. The first group consisted of 21 individuals (12 males, 9 females; mean age = 39.26, s.d. = 11.30) who had experienced one or more psychotic episodes in their lives and who were currently well enough to consent and take part in the study. All participants had a diagnosis of Schizophrenia, Paranoid Schizophrenia, Schizoaffective Disorder, Psychosis or Bipolar Disorder with psychotic features, confirmed by their referring clinician. The diagnoses were not confirmed through diagnostic interview, as for the purposes of this study, the experience of psychosis was considered more important than specific diagnoses. Participants in the psychosis group were recruited from Clinical Psychology Departments in Lothian. The second group consisted of 21 individuals (5 males, 16 females; mean age = 40.52, s.d. = 10.67) who were currently being seen by Clinical Psychologists in Lothian for help with anxiety or mood disorders and had never experienced a psychotic episode.

Participants in the two clinical groups were given a Participant Information Sheet (Appendix 2) during a routine appointment with their Clinical Psychologist and asked to take part in the study. In doing so the voluntary nature of participation was emphasised and they were given as long as necessary to decide.

The third group consisted of 21 healthy participants (12 males, 9 females; mean age = 40.00, s.d. = 11.88) with no known history of (or current) emotional disorder who were matched to the psychosis group for age and gender. They consisted of an opportunity sample and included NHS Lothian employees and acquaintances.

2.4. Measures and rationale for their selection

2.4.1. Self-report measures and psychosis

This study adopted a self-report methodology as previous research has found that individuals diagnosed with psychosis are able to provide valid and reliable self-reports on measures of anxiety and depression (Huppert, Smith and Apfeldorf, 2002). Rather than use a number of questionnaires in order to measure emotional experience it seemed most appropriate to identify one measure which could assess negative and positive emotional experience, as previous research has suggested that there is some overlap in measures of anxiety and depression in this group (Norman, Malla, Cortese and Diaz, 1998). The literature reviewed above suggests that emotion regulation should be measured both in terms of functionality and whether it is antecedent or response-focussed. The research on coping calls for a measure which covers as many relevant coping strategies as possible without significantly increasing participant response burden.

2.4.2. The Emotion Regulation Questionnaire (ERQ)

The Emotion Regulation Questionnaire (ERQ; Gross and John, 2003) (Appendix 3) is a 10-item questionnaire designed to measure the use of 2 emotion regulation strategies: Cognitive Reappraisal (6 items) and Expressive Suppression (4 items). Cognitive Reappraisal is a form of antecedent-focussed emotion regulation whereby the individual modifies their thoughts about a potential emotion-eliciting situation in order to alter its emotional impact. Expression suppression is a form of response-focussed emotion regulation whereby the individual inhibits their emotional expression once the emotion has been elicited. Gross and John (2003) have found

antecedent and response-focussed strategies to be relatively independent of one another.

The ERQ requires the respondent to rate their agreement with each item using a 7-point Likert Scale (scored 1-7) in relation to how they respond to their emotions. Total scores for Cognitive Reappraisal (6-42) and Expressive Suppression (4-28) are then calculated. No research was identified that has used this measure with clinical groups, however Gross and John (2003) report data for non-clinical groups suggesting the scales have good internal reliability (Reappraisal α=.79; Suppression α=.73) and good test-retest reliability (α=.69 over 3 months for both scales).

The development of standardised measures for the assessment of emotion regulation is still in the early stages. Comparison data is therefore restricted to non-clinical groups. However the ERQ appears to be accessible to participants, possibly in part due to its brevity (Hodgson, 2005) and is also derived from a clear process model of emotion regulation strategies which may enhance interpretation of findings.

2.4.3. The Emotion Regulation Questionnaire 2 (ERQ-2)

The ERQ-2 (Phillips, 2005) (Appendix 4) was developed as a measure of emotional regulation for children and adolescents, in the context of a lack of existing measures. It is based on a model of emotion regulation, derived from the literature, which categorises emotion regulation strategies as functional or dysfunctional (in relation to acceptance or rejection of emotional state) and as an internal regulatory strategy (e.g. cognitive change) or an external regulatory strategy (e.g. environmental change)

(Phillips, 2005). The ERQ-2 asks respondents to rate how often, in general, they engage in the use of the strategies in response to their emotions, on a 5 point Likert Scale (scored 1-5).

The items of the ERQ-2 were developed to represent emotion regulation strategies identified from the literature and were classified in relation to the model based on the consensus of a panel of experts. A 32-item pilot scale resulted which was refined to a 19-item scale as the result of item analysis, MAP analysis and factor analysis of the scale structures (based on a sample of 351 questionnaires completed by children and adolescents). Confirmatory factor analysis (using the same sample) supported a model of emotion regulation strategies which categorises strategies on the basis of functionality and the use of internal/external resources.

The child and adolescent validation sample showed good internal reliability (Table 2.1). Power (in preparation) has added 2 further items to the External-Functional scale in an attempt to increase the internal reliability of this scale (Appendix 4, items 20 and 21). At the time of writing there was no data available on the test-retest reliability of the scales.

Table 2.1 Internal reliability of ERQ-2 (19 item) subscales.

Subscale	**N**	α
Internal-Functional	351	.758
Internal-Dysfunctional	351	.716
External-Functional	351	.659
External-Dysfunctional	351	.757

Philips (2005) assessed the construct validity of the ERQ-2 by comparing the scores with a number of existing child and adolescent measures relating to emotional and behavioural functioning. The outcome of the analyses were very favourable with strong relationships being found between the dysfunctional scales and the experience of negative emotions, difficulties (as measured by the Strengths and Difficulties Questionnaire, Goodman 1997) and increased psychosomatic complaints, while the functional scales were found to be negatively correlated with difficulties and positively correlated with health related quality of life. Overall the findings are supportive of good construct validity in the ERQ-2, suggesting it may be an appropriate measure to use in the present study.

As the ERQ-2 has not yet been validated with the general adult or adult clinical populations this will place limitations on the interpretation of the present studies findings. However, given the dearth of appropriate measures of emotion regulation and the unique consideration of functionality of emotion regulation strategies, the ERQ-2 may be viewed as a valuable addition to the research design.

2.4.4. The Basic Emotions Scale

The Basic Emotions Scale (BES, Power in press) (Appendix 5) is a self report measure of emotion which measures experience of five 'basic' emotions (anger, sadness, disgust, fear and happiness) over the last week and in general, as well as including a scale of perceived coping with emotions. The respondent uses a 7-point Likert Scale (scored 1-7) to rate the degree to which they have experienced the

emotions or feel that they can cope with the emotions. A total score is then derived for each scale (4-28).

The BES was developed from a categorical approach to emotions which views emotions in terms of discrete categories of 'basic' emotions from which more complex emotions are derived (Power, in press). The emotions are considered as 'basic' as they can be identified early in development and appear across cultures. Although there has been some debate as to the exact number of 'basic' emotions (Power and Dalgleish, 1997) the five emotions (anger, sadness, disgust, fear and happiness) included in the BES appear on nearly all 'basic' emotion lists (Power, in press).

A 30-item pilot scale was developed which was refined to a 20 item scale as the result of item analysis and MAP analysis of the scale structures (based on a sample of 219 questionnaires completed by students). Confirmatory factor analysis (using the same sample) supported a model of five 'basic' emotions, correlated with each other, which can become 'coupled' together in the form of more complex emotions. Internal reliability was assessed using Cronbach alpha (Table 2.2) and found the scales to have good internal reliability. At the time of writing there was no data available on the test-retest reliability of the scales.

Table 2.2 Internal reliability of BES subscales.

Subscale	N	α
Anger	219	.806
Sadness	219	.842
Disgust	219	.839
Fear	219	.790
Happiness	219	.825

The above analyses were carried out in relation to the trait-like 'in general' scale of the BES as the state-like 'past-week' ratings showed poor item distributions (particularly in the disgust category).

As the BES has not yet been validated with clinical populations caution will be used in the interpretation of the present studies findings. However the benefits of the BES are that it allows for the assessment of a number of emotions in one scale, thereby reducing participant response burden, and is derived from a clear categorical theory of basic emotions.

2.4.5. The Brief COPE

The Brief COPE (Carver, 1997) (Appendix 6) is an abbreviated version of the COPE (Carver, Scheier and Weintraub, 1989) covering 14 theoretically derived coping strategies. The scales of the brief COPE can be grouped into adaptive (scales 1-8, see Table 2.3) and maladaptive (scales 9-14, see Table 2.3) as well as emotion (emotional support, venting and positive reframing scales) and problem-focussed (active coping, planning and instrumental support scales) scales (Meyer, 2001; Carver, Scheier and Weintraub, 1989). The respondent uses a 4-point Likert Scale

(scored 1-4) to rate the degree to which they generally engage in each of the coping strategies. A total score is then derived for each of the 14 scales (2-8).

Carver (1997) examined the psychometric properties of the Brief COPE with a sample of 168 hurricane survivors (124 completed the second assessment and 126 completed the third assessment). Internal reliability was assessed using Cronbach alpha averaged across the 3 administrations in the sample (Table 2.3), the scales were found to have acceptable internal reliability (although some alpha coefficients were between .50 and 60) despite being derived from 2 items each.

Table 2.3 Internal reliability of the Brief COPE subscales.

Subscale	N	α
Active Coping	318	.68
Planning	318	.73
Positive Reframing	318	.64
Acceptance	318	.57
Humour	318	.73
Religion	318	.82
Emotional Support	318	.71
Instrumental Support	318	.64
Self-Distraction	318	.71
Denial	318	.54
Venting	318	.50
Substance Use	318	.90
Behavioural Disengagement	318	.65
Self-Blame	318	.69

Exploratory factor analysis yielded a complex factor structure, with 9 factors accounting for 72.4% of the variance (Carver, 1997). This factor structure is very similar to the factor structure found for the full inventory (Carver, Scheier and Weintraub, 1989).

Although the convergent and discriminant validity of the Brief COPE has yet to be documented there is data available regarding the original COPE, from which the majority of the Brief COPE items were adopted. Carver, Scheier and Weintraub (1989) found strong evidence for the convergent and discriminant validity of the COPE as the scales were found to correlate with theoretically related dimensions, including self-esteem, hardiness, trait anxiety and optimism. They also noted that the scales were not strongly correlated with social desirability suggesting they are valid measures less affected by desirability. Clark, Bormann, Cropanzano and James (1995) compared the COPE with 2 other popular coping inventories, The Coping Strategy Indicator (Amirkhan, 1990) and the Ways of Coping-Revised (Folkman and Lazarus, 1985). They replicated the internal factor structure of the original COPE found by Carver, Scheier and Weintraub (1989), they found the COPE had high convergent validity with the other two measures as well as good discriminant validity. They also found that the COPE was able to predict negative affectivity. Overall the COPE was found to be able to explain more of the variance in outcome measures than two coping scales it was compared with.

As noted by Meyer (2001) there is no "universally accepted methodology to assess coping" (2001: 266). The Brief COPE was chosen for the purposes of this study as it measures a broad variety of adaptive and maladaptive as well as emotion and problem-focussed dimensions. The Brief COPE was chosen as opposed to its predecessor the COPE as previous research had found participants became impatient with the redundancy of some of the items in the COPE (Carver, Pozo, Harris, Noriega, Scheier, Robinson, Ketcham, Moffat and Clark, 1993) and reducing

participant response burden was considered an important ethical aspect of the present study.

2.5. Procedure

As noted above potential participants were given an information sheet during their routine appointment with their clinical psychologist and asked if they would be willing to take part in the study. If they were willing to take part the psychologist passed their contact details to the researcher who then contacted them by phone to arrange a suitable time to meet, either at the clinic where they saw their psychologist or at their home, if requested (and appropriate). All participants met with the researcher individually to complete the questionnaires which took around 30 minutes to 1 hour.

A standard procedure was followed in the research sessions. The participant was initially given the opportunity to ask any questions they had about the study based on the information provided, and then asked to sign a consent form. The measures were then completed in a standard order (Table 2.4). For each participant the researcher went over the instructions of the questionnaires and answered any queries about individual items. Once all the measures had been completed the participant had the opportunity to ask any further questions or make any comments about the study. They were then thanked for their participation and asked whether they would like to receive a summary of the findings from the research.

Table 2.4 Order of administration of measures

Order	Measure
1	The Basic Emotions Scale
2	ERQ
3	ERQ-2
4	The Brief COPE

The participants' GPs and psychiatrists (for those being seen by psychiatry) were informed by letter that the individual had taken part in the study. The procedure and documentation used all conformed to COREC guidelines. Participants also had the researcher's and research supervisor's contact details on the information sheet in order that they could re-contact the researcher or supervisor with any further queries or concerns.

2.6. Ethical issues

A number of ethical issues were taken into consideration in the planning of this study. Response burden for the participants was viewed as a critical consideration therefore the measures selected for use in this study were chosen as they covered the relevant areas with the fewest items. As with any one to one interaction there was the potential that participants may have found some of the questions sensitive or upsetting, this possibility was dealt with by advising the participants that they did not have to answer any questions they felt uncomfortable with and that they could decide to withdraw their participation at any time (no participants asked for the interview to be terminated nor refused to answer any questions). All the participants were currently being seen by clinical psychologists and therefore there was also the opportunity for them to discuss any concerns they had about the study with their clinician. Travelling expenses were not available for the participants in this study, to

minimise any inconvenience participants were offered the opportunity to be interviewed at their usual treatment centre (often directly after their appointment with their clinical psychologist) or at home. Dissemination of results was also viewed as an important ethical consideration. The participants in this study were offered written feedback of the results. The results will be presented at the Clinical Psychology department's research meeting. It is also planned that the study will be written up for submission for publication.

The study proposal was reviewed by the relevant Local Research Ethics Committee (Appendix 1), which approved the research being carried out in the Lothian area.

Chapter 3: Results

3.1. Exploratory analyses

Exploratory analyses were carried out in order to ascertain whether the data met the assumptions regarding normality and homogeneity of variance required for parametric tests. Normality was assessed by examining histograms and the skewness and kurtosis of each distribution (Appendix 7), outliers on box-plots were also taken into consideration when assessing the distribution. Homogeneity of variance was assessed by carrying out Levene's test. Throughout the analyses, whenever homogeneity of variance could not be assumed as indicated by Levene's test, adjusted degrees of freedom were used to calculate the *t* values in group comparisons. It was planned to use one-way ANOVAs subject to parametric assumptions being met. To reduce repetition, unless stated otherwise, the parametric assumptions for conducting one-way ANOVAs have been assessed and satisfied in each case. Although some of the data showed slight skewness and kurtosis it appeared that much of this was due to outliers, it was therefore decided that it would not be appropriate to do uniform transformations. Also the techniques used were considered to be significantly robust to accommodate these variances (Howell, 1995). As a precaution the results of the ANOVAs were checked with non-parametric statistics (Kruskal-Wallis one-way analysis of variance) and in each case the results remained the same.

The measures in the study were all based on Likert scales, which strictly produce ordinal level data as the interval between scores may not be equal. However, in

psychological research, it is conventional to treat such data as interval if there is a significantly large range of possible scores for the dimensions to be analysed (Clark-Carter, 2004). It is assumed therefore that the scales have approximately equal intervals and that sufficient checks would be carried out, such as examining the distribution of the data, to ensure that that this assumption is not significantly contravened. As the measures used in this study have undergone validation studies and some process of standardisation, it is considered appropriate to assume approximation to interval level data. Furthermore the data used in this study was based on total scores summed from individual Likert responses and is therefore from an approximate continuous distribution.

3.2. Sample characteristics

Table 3.1 Descriptive statistics for age and gender of sample

Characteristic	**Group**		
	Psychosis (N=21)	**Anxiety/Mood Disorder (N=21)**	**Healthy Volunteers (N=21)**
Gender (M/F)	12/9	5/16	12/9
Age (Std Dev)	39.26 (11.30)	40.52 (10.67)	40.00 (11.88)

The overall mean age for the participants in this study was 39.93 years (*SD*=11.12). A one-way ANOVA revealed no significant difference in age between the 3 groups, $F(2,60) = 0.065$, $p > 0.05$.

As can be seen in table 3.1 the psychosis and healthy volunteer groups had the same ratio of males to females while the anxiety/mood disorder group consisted of a greater proportion of females. A 2x3 chi square found a significant difference in gender between the 3 groups, $\chi^2 (2) = 6.262$, $p < 0.05$.

Two-tailed independent samples t-tests were carried out in order to determine whether, for each group, there was a significant difference between males and females in each of the variables and gender would therefore need to be controlled for in further analyses. In the psychosis group males were found to score significantly higher than females on the Cognitive Reappraisal subscale of the ERQ, $t(19) = 2.918$, $p < 0.05$ (male mean score = 28.25, female mean score = 18.78), on the Denial subscale of the Brief COPE, $t(19) = 2.509$, $p < 0.05$ (male mean score = 4.67, female mean score = 3.11), while females were found to score significantly higher than males on the Self-blame subscale of the Brief COPE, $t(19) = -2.364$, $p < 0.05$ (male mean score = 5.83, female mean score = 7.11). In the anxiety/mood disorder group females were found to score significantly higher than males on the Overall General scale of the BES, $t(18.714) = -3.251$, $p < 0.05$ (male mean score = 71.60, female mean score = 83.44) and on the Denial subscale of the Brief COPE, $t(15) = -3.967$, $p < 0.05$ (male mean score = 2.00, female mean score = 3.69. In the healthy volunteer group males were found to score significantly higher on the Planning subscale of the Brief COPE, $t(19) = 2.321$, $p < 0.05$ (male mean score = 6.42, female mean score = 5.44). Gender will therefore be controlled for in the analyses of the above variables.

3.3. Hypotheses testing

3.3.1. Hypothesis 1:

Individuals who experience psychosis and individuals who have an anxiety/mood disorder who have not experienced psychosis will attempt to regulate their emotions in similar ways and that this will differ from healthy volunteers.

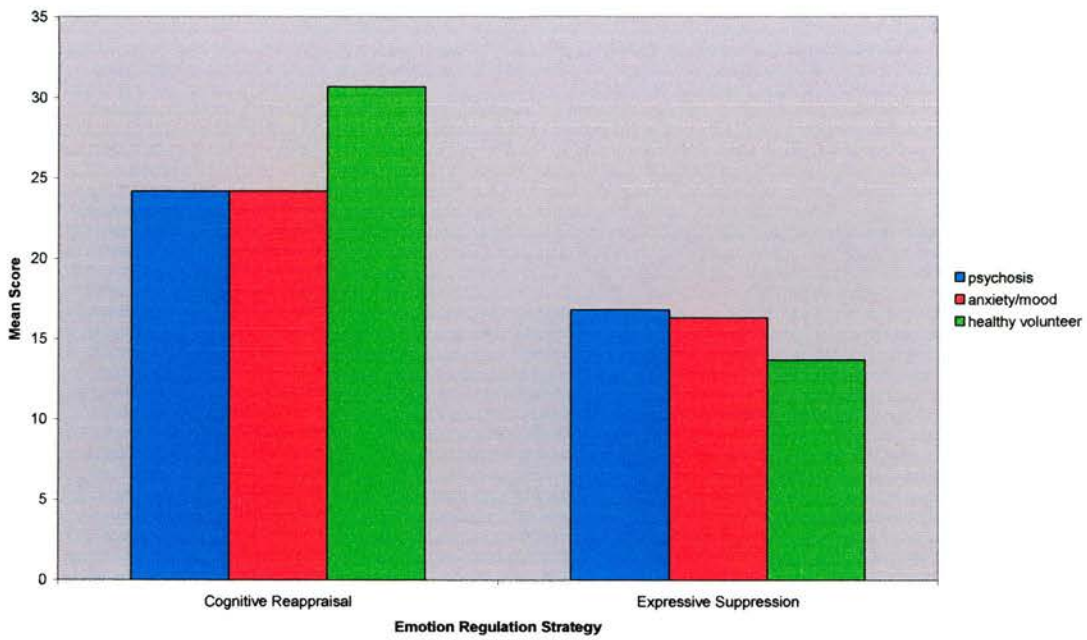
Scores on the Emotion Regulation Questionnaire (ERQ) and the Emotion Regulation Questionnaire-2 (ERQ-2) were used to assess Hypothesis 1.

3.3.1.1. ERQ subscales

The ERQ is a 10 item questionnaire designed to measure the use of 2 emotion regulation strategies: Cognitive Reappraisal and Expressive Suppression. Cognitive Reappraisal is a form of antecedent-focussed emotion regulation whereby an individual modifies their thoughts about a potential emotion-eliciting situation in order to alter its emotional impact. Expressive Suppression is a form of response-focussed emotion regulation whereby the individual inhibits their emotional expression once the emotion has been elicited. The total score for the Cognitive Reappraisal subscale is based on summing the scores for 6 items and the possible range of scoring is 6-42 with higher scores indicating greater use of this strategy. The total score for the Expressive Suppression subscale is based on summing the scores for 4 items and the possible range of scoring is 4-28 with higher scores indicating greater use of this strategy. Descriptive statistics for total scores on the Expressive Suppression and Cognitive Reappraisal subscales of the ERQ are presented in appendix 7.

As illustrated in Figure 3.1 the group mean total scores show a difference in the predicted direction with the 2 clinical groups scoring similar to each other and different to the healthy volunteers for both Cognitive Reappraisal and Expressive Suppression subscales.

Figure 3.1 Mean scores on ERQ Cognitive Reappraisal and Expressive Suppression subscales for the 3 groups



As noted above males in the psychosis group were found to score higher than females on the Cognitive Reappraisal subscale of the ERQ. Gender was therefore controlled for in a one-way ANCOVA analysis of this variable and was found to have no significant main effect, $F(1,59) = 0.923$, $p > 0.05$, while group was found to have a significant main effect, $F(2,59) = 4.611$, $p < 0.05$. A one-way ANOVA revealed a significant main effect of group, $F(2,60) = 5.161$, $p < 0.05$. In order to determine whether the significant main effect in group lay *post hoc* contrast t-tests were carried out, they found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(59.51) = -4.003$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(39.85) = 0.000$, $p > 0.025$. The *post hoc* comparisons were carried out using SPSS which automatically corrects for multiple comparisons using a Bonferroni adjustment. In all

post hoc comparisons carried out the increased likelihood of Type 1 error was therefore controlled for.

A one-way ANOVA revealed no significant main effect of group on the Expression Suppression subscale, $F(2,60) = 2.158$, $p > 0.05$.

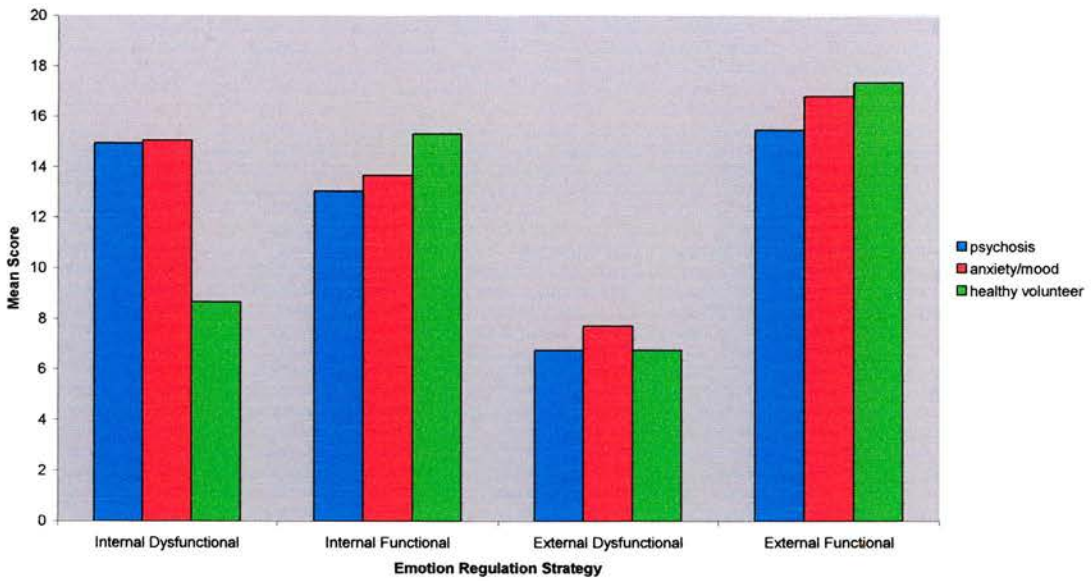
3.3.1.2. ERQ-2 subscales

The ERQ-2 is based on a model of emotion regulation which categorises emotion regulation strategies as functional or dysfunctional (in relation to acceptance or rejection of emotional state) and as an internal regulatory strategy (e.g. cognitive change) or an external regulatory strategy (e.g. environmental change). The total scores for the Internal-Dysfunctional, Internal-Functional and External-Dysfunctional subscales are based on summing the scores for 5 items each and the possible range of scoring is 5-25 (higher scores indicating greater use of each strategy). The total score for the External-Functional subscale is based on summing the scores for 6 items and the possible range of scoring is 6-30 (higher scores indicating greater use of this strategy). Descriptive statistics for total scores on the Internal-Dysfunctional, Internal-Functional, External-Dysfunctional and External-Functional subscales of the ERQ-2 are presented in appendix 7.

As illustrated in Figure 3.2 the group mean total scores show a difference in the predicted direction for the Internal-Dysfunctional and Internal-Functional subscales with the 2 clinical groups scoring similar to each other and different to the healthy volunteers. The group mean total scores of the External Dysfunctional subscale do

not show a difference in the predicted direction, while the group mean total scores of the External-Functional subscale show a trend towards the predicted direction.

Figure 3.2 Mean scores on ERQ-2 Internal-Dysfunctional, Internal-Functional, External-Dysfunctional and External-Functional subscales for the 3 groups



A one-way ANOVA revealed a significant main effect of group on the Internal-Dysfunctional subscale, $F(2,60) = 37.517$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = 8.661$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(60) = -0.115$, $p > 0.025$.

A one-way ANOVA revealed a significant main effect of group on the Internal-Functional subscale, $F(2,60) = 4.861$, $p < 0.05$. In order to determine where the main

effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = -3.009$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(60) = -0.816$, $p > 0.025$.

A one-way ANOVA revealed no significant main effect of group on the External-Dysfunctional subscale, $F(2,60) = 2.611$, $p > 0.05$.

A one-way ANOVA revealed no significant main effect of group on the External-Functional subscale, $F(2,60) = 1.383$, $p > 0.05$. (The 19 item version of the ERQ-2 contains 4 items for the External-Functional subscale, analysis of these 4 items yielded a similar result with no significant main effect, $F(2,60) = 2.255$, $p > 0.05$).

3.3.1.3. Implications of analyses for Hypothesis 1

Significant differences were found between the mean scores of the clinical and healthy volunteers groups on a number of emotion regulation subscales (Cognitive Reappraisal, Internal-Dysfunctional and Internal-Functional). The results of the ERQ suggest that the healthy volunteers were more likely to regulate their emotions through Cognitive Reappraisal (such as thinking about the situation in a different way) than the clinical groups. No significant differences were found between the groups on Expressive Suppression (suggesting that the groups were equally as likely to endorse strategies such as keeping their emotions to themselves).

With regard to the ERQ-2 results the clinical groups were found to score significantly different to the healthy volunteers on Internal-Dysfunctional and

Internal Functional emotion regulation strategies (while not significantly different to each other) suggesting that the clinical groups used higher levels of Internal-Dysfunctional emotion regulation strategies (such as dwelling on their thoughts and feelings) and lower levels of Internal-Functional emotion regulation strategies (such as reviewing their thoughts of beliefs) . No significant differences were found between the groups on External-Dysfunctional or External-Functional emotion regulation strategies.

As such the results of the ERQ and ERQ-2 provide partial support for Hypothesis 1, which predicts that the clinical groups will attempt to regulate their emotions in a similar way, which will be different from healthy volunteers. In particular it was found that the clinical groups used higher levels of maladaptive emotion regulation strategies and lower levels of adaptive emotion regulation strategies than the healthy volunteers.

3.3.2. Hypothesis 2:

The current emotional state of individuals who experience psychosis will be similar to that of those who have an anxiety/mood disorder who have not experienced psychosis and that this will differ from healthy volunteers.

Scores on the 'last week' subscale of the Basic Emotions Scale (BES) will be used to assess hypothesis 2.

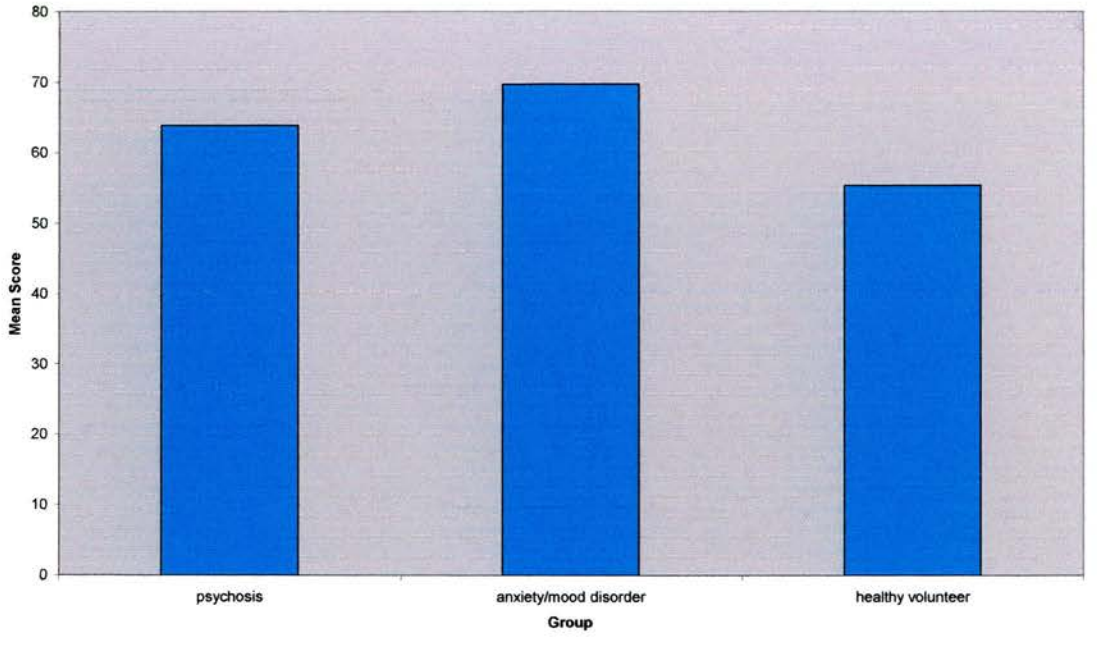
The BES measures the experience of five 'basic' emotions over the last week and in general, the scores for each of the five 'basic' emotions can be summed to provide an overall emotionality score. Higher scores for each of the emotions and overall emotionality indicate greater experiences of the emotions.

Descriptive statistics for total scores on the 'last week' overall emotionality, anger, sadness, disgust, fear and happiness subscales of the BES are presented in appendix 7. The total scores for the anger, sadness, disgust, fear and happiness subscales are based on summing the scores for 4 items each and the possible range of scoring is 4-28. The overall emotionality total score is based on summing the 5 subscales (all 20 items) and the possible range of scoring is 20-140.

3.3.2.1. BES 'last week' overall emotionality subscale

As illustrated in Figure 3.3 the group mean total scores show a difference in the predicted direction for the 'last week' overall emotionality subscale of the BES with the 2 clinical groups scoring similar to each other and slightly higher than the healthy volunteers.

Figure 3.3 Mean scores on BES 'last week' overall emotionality subscale for the 3 groups

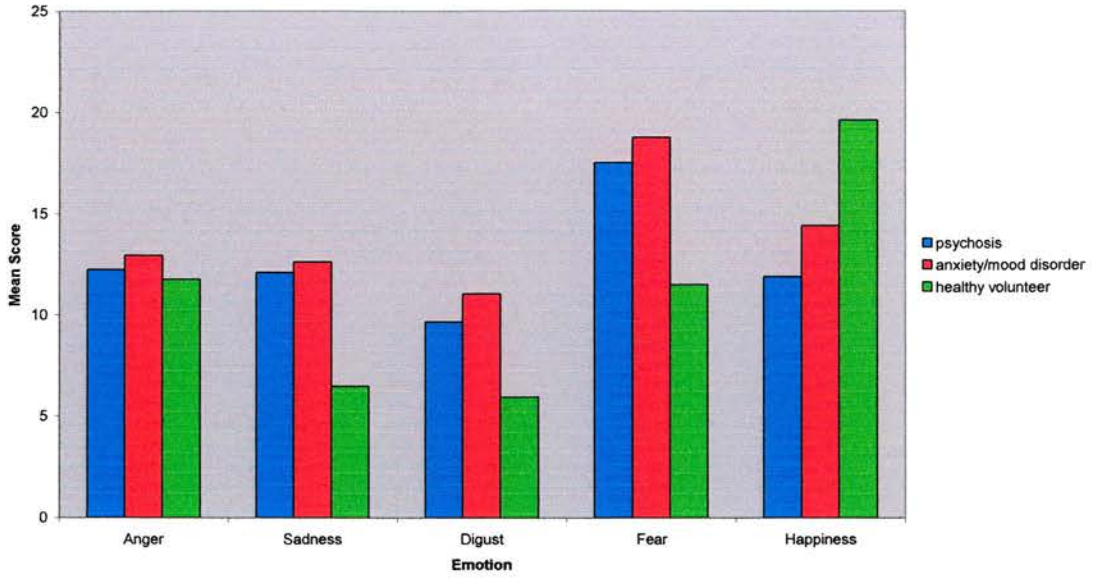


A one-way ANOVA revealed a significant main effect of group on the 'last week' overall emotionality subscale, $F(2,60) = 5.184$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = 2.944$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(60) = -1.304$, $p > 0.025$.

3.3.2.2. BES 'last week' emotion subscales

As illustrated in Figure 3.4 the group mean total scores show a difference in the predicted direction for the 'last week' sadness, disgust, fear and happiness subscales of the BES with the 2 clinical groups scoring similar to each other and different to the healthy volunteers. The 3 groups appeared to have experienced similar current levels of anger.

Figure 3.4 Mean scores on BES 'last week' anger, sadness, disgust, fear and happiness subscales for the 3 groups



A one-way ANOVA revealed no significant main effect of group on the 'last week' anger subscale, $F(2,60) = 0.348$, $p > 0.05$.

A one-way ANOVA revealed a significant main effect of group on the 'last week' sadness subscale, $F(2,60) = 8.505$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(54.924) = 4.796$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(38.815) = -0.282$, $p > 0.025$.

A one-way ANOVA revealed a significant main effect of group on the 'last week' disgust subscale, $F(2,60) = 5.694$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference

when comparing the 2 clinical groups together to the healthy volunteers, $t(58.686) = 4.048$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(39.014) = -0.760$, $p > 0.025$.

A one-way ANOVA revealed a significant main effect of group on the 'last week' fear subscale, $F(2,60) = 13.445$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = 5.120$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(60) = -0.823$, $p > 0.025$.

A one-way ANOVA revealed a significant main effect of group on the 'last week' happiness subscale, $F(2,60) = 13.613$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(55.873) = -5.658$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(39.792) = -1.505$, $p > 0.025$.

3.3.2.3. Implications of analyses for Hypothesis 2

Significant differences were found between the mean scores of the clinical and healthy volunteers groups on 'last week' overall emotionality, with the 2 clinical groups scoring similarly to each other and significantly different from the healthy volunteer group (as expected the clinical groups showed greater overall levels of emotionality).

Further comparisons found that the clinical groups scored similarly to each other and significantly different from healthy volunteers on 'last week' sadness, disgust and fear, where the clinical groups reported greater experiences of these emotions, and on happiness, where the clinical groups reported experiencing this emotion less often. The groups were not found to experience significantly different levels of anger.

As such the results of the BES 'last week' subscales support Hypothesis 2 (with the exception of anger), which predicts that the current emotional experience of individuals who experience psychosis will be similar to that of those with an anxiety/mood disorder and that this will differ from healthy volunteers.

3.3.3. Hypothesis 3:

The general emotional state of individuals who experience psychosis will be similar to that of those who have an anxiety/mood disorder who have not experienced psychosis and that this will differ from healthy volunteers.

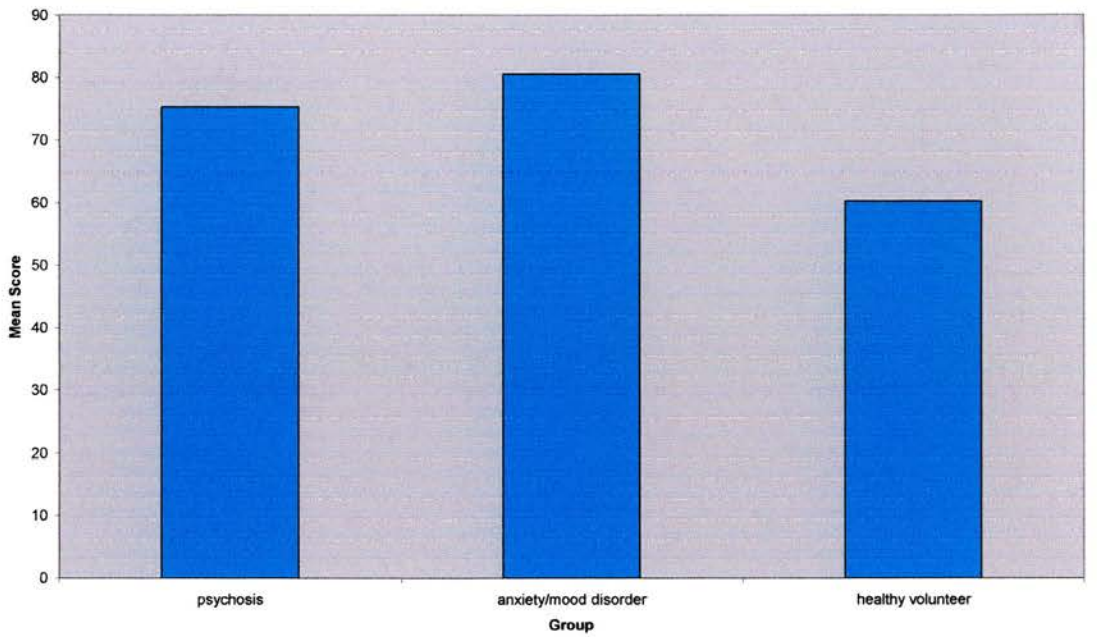
Scores on the 'in general' subscale of the Basic Emotions Scale will be used to assess hypothesis 3.

Descriptive statistics for total scores on the 'in general' overall emotionality, anger, sadness, disgust, fear and happiness subscales of the BES are presented in appendix 7. The total scores for the 'in general' subscales are derived in the same way as the 'last week' subscales.

3.3.3.1 BES 'in general' overall emotionality subscale

As illustrated in Figure 3.5 the group mean total scores show a difference in the predicted direction for the 'in general' overall emotionality subscale of the BES with the 2 clinical groups scoring similar to each other and slightly higher than the healthy volunteers.

Figure 3.5 Mean scores on BES 'in general' overall emotionality subscale for the 3 groups



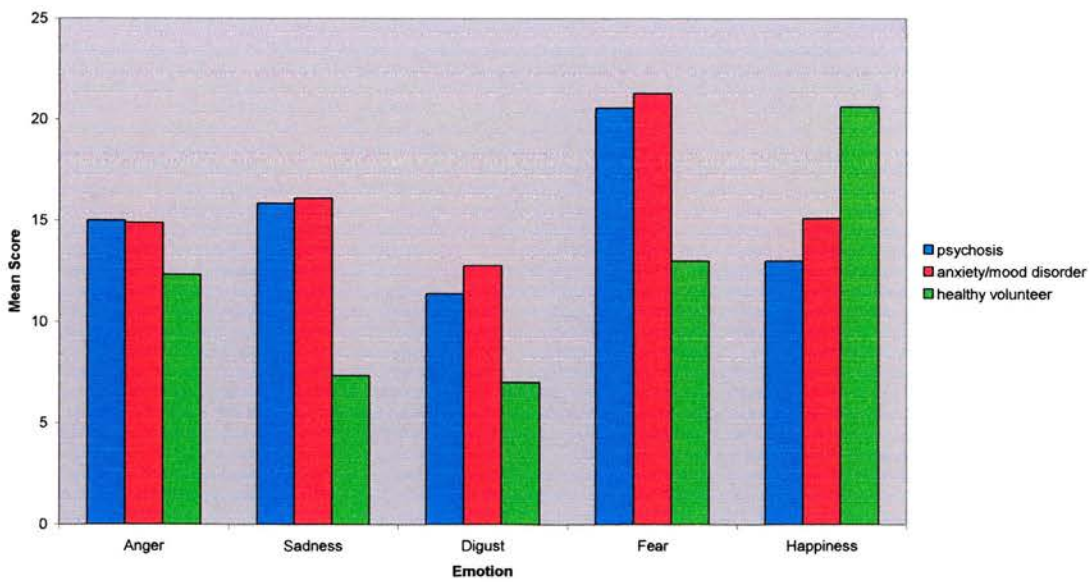
As noted in section 3.2 females in the anxiety/mood disorder group were found to score higher than males on the 'in general' overall emotionality subscale of the BES. Gender was therefore controlled for in a one-way ANCOVA analysis of this variable and was found to have no significant main effect, $F(1,59) = 2.441$, $p > 0.05$, while group was found to have a significant main effect, $F(2,59) = 8.647$, $p < 0.05$. A one-way ANOVA revealed a significant main effect of group on the 'in general' overall emotionality subscale, $F(2,60) = 10.301$, $p < 0.05$. In order to determine whether the

significant main effect in group lay *post hoc* contrast t-tests were carried out, they found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = 4.393$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(60) = -1.140$, $p > 0.025$.

3.3.3.2. BES 'in general' emotion subscales

As illustrated in Figure 3.6 the group mean total scores show a difference in the predicted direction for the 'in general' anger, sadness, disgust, fear and happiness subscales of the BES with the 2 clinical groups scoring similar to each other and different to the healthy volunteers. The 3 groups appeared to have experienced similar current levels of anger.

Figure 3.6 Mean scores on BES 'in general' anger, sadness, disgust, fear and happiness subscales for the 3 groups



A one-way ANOVA revealed no significant main effect of group on the 'in general' anger subscale, $F(2,60) = 2.140$, $p > 0.05$.

A one-way ANOVA revealed a significant main effect of group on the 'in general' sadness subscale, $F(2,60) = 17.107$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = 5.848$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(38.815) = -0.140$, $p > 0.025$.

A one-way ANOVA revealed a significant main effect of group on the 'in general' disgust subscale, $F(2,60) = 6.506$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(57.525) = 4.503$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(39.916) = 0.487$, $p > 0.025$.

A one-way ANOVA revealed a significant main effect of group on the 'in general' fear subscale, $F(2,60) = 25.264$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = 7.087$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(60) = -0.553$, $p > 0.025$.

A one-way ANOVA revealed a significant main effect of group on the 'in general' happiness subscale, $F(2,60) = 15.409$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = -5.351$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(60) = -1.478$, $p > 0.025$.

3.3.3.3. Implications of analyses for Hypothesis 3

Significant differences were found between the mean scores of the clinical and healthy volunteer groups on 'in general' overall emotionality with the 2 clinical groups scoring similarly to each other and significantly different from the healthy volunteer group (as expected the clinical groups showed greater overall levels of emotionality).

Further comparisons found that the clinical groups scored similarly to each other and significantly different from healthy volunteers on 'in general' sadness, disgust and fear, where the clinical groups reported greater experiences of these emotions. This was also found to be the case for happiness, where the clinical groups reported experiencing this emotion less often.

As such the results of the BES 'in general' subscales support Hypothesis 3 which predicts that the general emotional experience of individuals who experience psychosis will be similar to that of those with an anxiety/mood disorder and that this will differ from healthy volunteers.

3.3.4. Hypothesis 4:

Individuals who experience psychosis will use similar coping strategies as individuals with an anxiety/mood disorder who have not experienced psychosis and that this will differ from healthy volunteers.

Scores on the Brief COPE will be used to assess hypothesis 4.

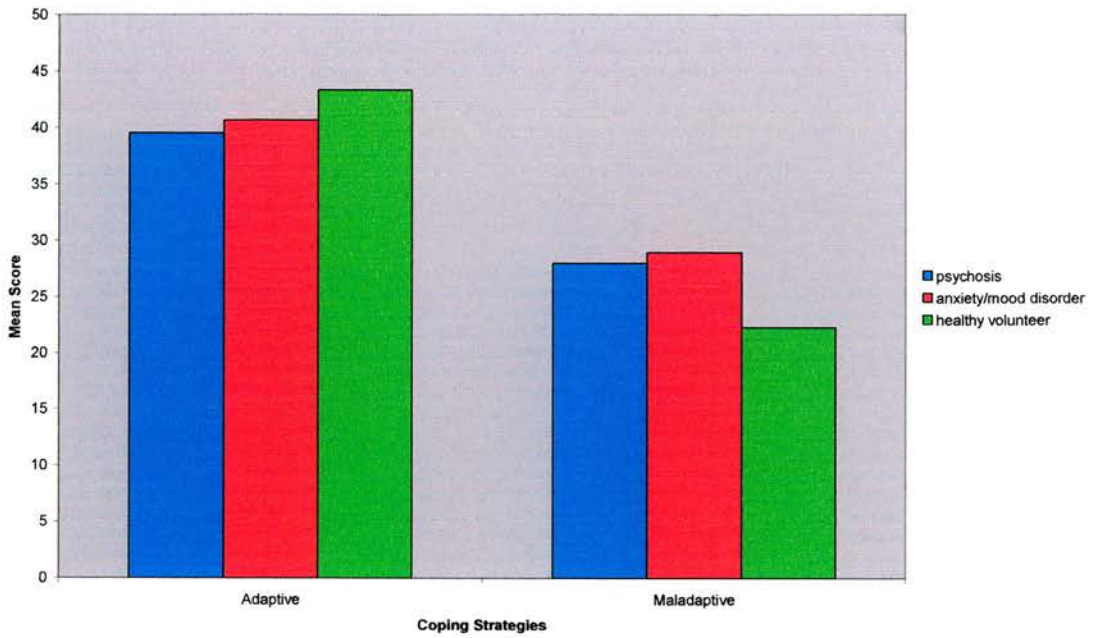
The Brief COPE is a questionnaire designed to assess the use of 14 theoretically derived coping strategies. The scales of the Brief COPE can be grouped into Adaptive and Maladaptive scales; and Emotion-Focussed and Problem-Focussed scales. For the purposes of this study it was considered to be most appropriate to analyse data for the 4 grouped scales as opposed to all 14 subscales. Higher scores on each of the scales reflect greater use of the coping strategies related to that scale.

3.3.4.1. Brief COPE Adaptive and Maladaptive subscales

Descriptive statistics for total scores on the Adaptive and Maladaptive subscales of the Brief COPE are presented in appendix 7. The total score for the Adaptive subscale is based on summing the scores for 16 items and the possible range of scoring is 16-64. The total score for the Maladaptive subscale is based on summing the scores for 12 items and the possible range of scoring is 12-48.

As illustrated in Figure 3.7 the group mean total scores show a difference in the predicted direction with the 2 clinical groups scoring similar to each other and different to the healthy volunteers for both Adaptive and Maladaptive subscales.

Figure 3.7 Mean scores on Brief COPE Adaptive and Maladaptive subscales for the 3 groups



A one-way ANOVA revealed no significant main effect of group on the Adaptive subscale, $F(2,60) = 1.515$, $p > 0.05$. A one-way ANOVA did however reveal a significant main effect of group on the Maladaptive subscale, $F(2,60) = 13.962$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = 5.238$, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(60) = -0.698$, $p > 0.025$.

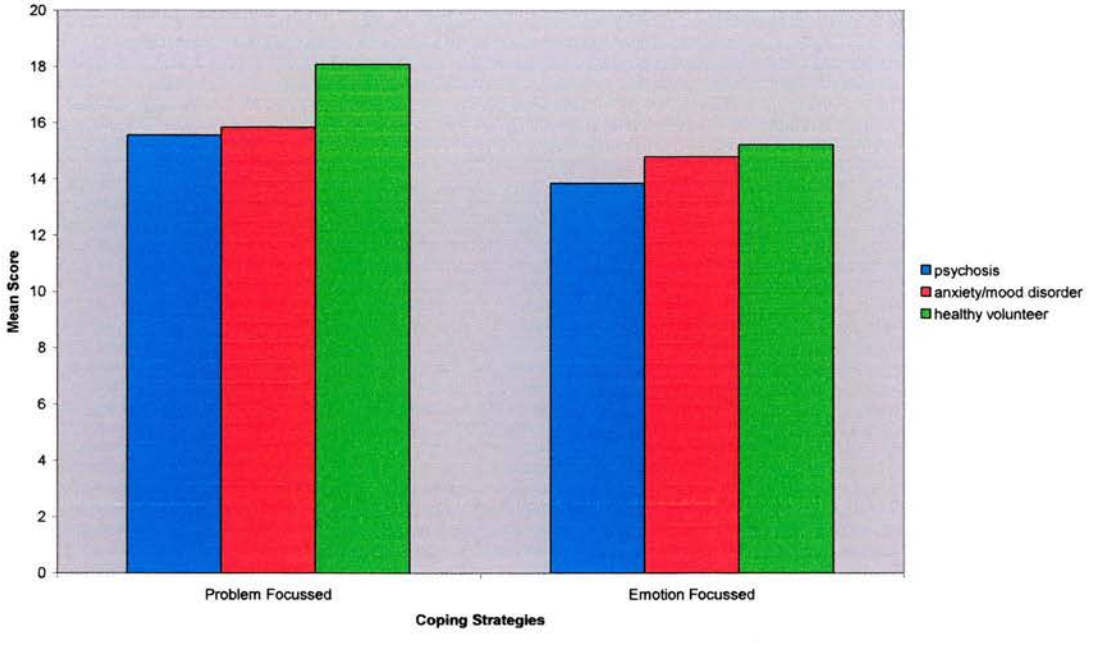
3.3.4.2. Brief COPE Problem-Focussed and Emotion-Focussed subscales

Descriptive statistics for total scores on the Problem-Focussed and Emotion-Focussed subscales of the Brief COPE are presented in appendix 7. The total scores for the Problem-Focussed and Emotion-Focussed subscales are based on summing

the scores for 3 scales each and the possible range of scoring for each subscale is 6-24.

As illustrated in Figure 3.8 the group mean total scores show a difference in the predicted direction with the 2 clinical groups scoring similar to each other and different to the healthy volunteers for the Problem-Focussed subscale, although there is less of a difference between the groups on the Emotion-Focussed subscale.

Figure 3.8 Mean scores on Brief COPE Problem-Focussed and Emotion-Focussed subscales for the 3 groups.



A one-way ANOVA revealed a significant main effect of group on the Problem-Focussed subscale, $F(2,60) = 4.494$, $p < 0.05$. In order to determine where this main effect lay *post hoc* contrast t-tests were carried out and found a significant difference when comparing the 2 clinical groups together to the healthy volunteers, $t(60) = -$

2.982, $p < 0.025$, with no significant difference when comparing the 2 clinical groups to each other, $t(60) = -0.310$, $p > 0.025$.

A one-way ANOVA revealed no significant main effect of group on the Emotion-Focussed subscale, $F(2,60) = 1.189$, $p > 0.05$.

3.3.4.3. Implications of analyses for Hypothesis 4

Significant differences were found between the mean scores of the clinical and healthy volunteer groups on the Maladaptive and Problem-Focussed subscales with the 2 clinical groups scoring similarly to each other and significantly different from the healthy volunteer group (with the clinical groups showing greater levels of Maladaptive coping and lower levels of Problem-Focussed coping than the healthy volunteer group). No significant differences were found between the groups on Adaptive coping or Emotion-Focussed coping.

As such the results of the Brief COPE provide partial support for Hypothesis 4 (in the case of Maladaptive and Problem-Focussed coping), which predicts individuals who experience psychosis will use similar coping strategies as individuals with an anxiety/mood disorder who have not experienced psychosis and that this will differ from healthy volunteers. However the results for Adaptive and Emotion-Focussed coping do not support Hypothesis 4.

Chapter 4: Discussion

4.1. Summary of findings

The main aim of this study was to investigate emotion regulation in psychosis. This was carried out in order to create a greater understanding of emotion regulation in psychosis given the dearth of research in this area. It was hypothesised that emotion regulation in psychosis would be similar to emotion regulation in anxiety/mood disorders and that this would differ from the general population. This hypothesis was partially supported by the ERQ results in that, as expected, Cognitive Reappraisal was found to be similar in the 2 clinical groups and significantly different from healthy volunteers. In particular it was found that the clinical groups were less likely than the healthy volunteers to think about situations differently in order to alter their emotional impact. No significant difference was found between the groups with regard to Expressive Suppression, suggesting that the clinical groups and healthy volunteers were equally likely to endorse items such as 'I keep my emotions to myself'. The results of the ERQ show that individuals who experience psychosis and individuals with an anxiety/mood disorder use less Cognitive Reappraisal strategies (such as thinking differently about the situation they are in) to regulate their emotions than healthy volunteers

An interesting finding of this study was that males who had experienced psychosis scored significantly higher than females who had experienced psychosis on Cognitive Reappraisal. It is not possible to determine from this study whether this would be a consistent finding relating to gender differences in emotion regulation in

psychosis or whether this finding is specific to the sample being investigated and therefore further research would need to be carried out.

The results of the ERQ-2 subscales also relate to the first hypothesis. The results of the internal subscales support the hypothesis in that, as expected, both Internal-Dysfunctional and Internal-Functional emotion regulation strategies were found to be used to a similar extent by the 2 clinical groups and significantly different to the healthy volunteers. In particular the clinical groups reported using more Internal-Dysfunctional emotion regulation strategies, such as dwelling on their thoughts and feelings, than the healthy volunteers. Meanwhile the healthy volunteers reported using significantly more Internal-Functional emotion regulation strategies, such as reviewing their thoughts or beliefs, than the clinical groups.

The results of the external subscales of the ERQ-2 do not support the first hypothesis as no significant differences were found between the groups on External-Dysfunctional and External-Functional emotion regulation strategies. The finding of similar amounts of external emotion regulation strategies in the clinical groups and healthy volunteers may reflect an important aspect of the sample chosen for this study. Both clinical groups were engaged with services and were receiving ongoing psychological input, this input may focus on and promote External-Functional emotion regulation strategies such as seeking support or advice from others. The mean scores for the 3 groups on External-Dysfunctional emotion regulation strategies were close to the minimum score available on this subscale suggesting that none of the groups tended to use External-Dysfunctional strategies.

The results of the ERQ-2 suggests that individuals who experience psychosis and individuals with an anxiety/mood disorder have similar difficulties with the internal regulation of emotions in that the clinical groups scored higher on Internal-Dysfunctional and lower on Internal-Functional emotion regulation strategies than the healthy volunteers.

The finding of higher levels of Internal-Dysfunctional emotion regulation strategies in the clinical groups in comparison with the healthy volunteers may be related to Ellring and Smith's (1998) proposal that psychosis is characterised by an affective regulation system which is focused on internal regulation. Although interestingly the psychosis group's mean scores for Internal-Dysfunctional and External Functional emotion regulation strategies are the same, suggesting that this group is able to make use of external resources for the regulation of their emotions. As noted earlier it may be that this group has developed these external strategies through their psychological input and it would be worthwhile to further investigate this possibility in future research perhaps by comparing groups pre and post intervention.

A further aim of this study was to investigate the emotional experience of individuals who experience psychosis. This was carried out in order to better understand emotional experience in psychosis given the historical Kraepelinian divide between neuroses and psychoses (Birchwood, 2004) and limited amount of research in this area. It was hypothesised that the current and general emotional state of individuals who experienced psychosis would be similar to that of those with an anxiety/mood disorder and that this would differ from healthy volunteers. This hypothesis was

supported by the BES 'last week' and 'in general' scales in that, as expected, the 2 clinical groups rated themselves as experiencing similar levels of emotions, significantly different to healthy volunteers (with the exception of the 'last week' anger subscale in which no significant difference was found between the groups). In particular the clinical groups reported experiencing greater amounts of what could be considered negative emotions (sadness, fear and disgust) than the healthy volunteers. They also reported experiencing happiness less often that the healthy volunteers.

An interesting finding of this study was that females with an anxiety/mood disorder were found to experience higher levels 'in general' of overall emotionality than males with an anxiety/mood disorder. It is not possible to determine from this study whether this would be a consistent finding relating to gender differences in overall emotionality in anxiety/mood disorder or whether this finding is specific to the sample being investigated. Given that this gender difference was not found in 'last week' overall emotionality it may suggest that this finding would not be consistent across samples.

The results of the BES suggests that individuals who experience psychosis and individuals with an anxiety/mood disorder experience similar levels of overall emotionality, as well as similar levels of what could be considered positive and negative emotions. The results of this study, alongside previous research (i.e. Suslow et al., 2003; van Os et al., 2000; Freeman and Garety, 2003) into the emotional experience of individuals who have experienced psychosis suggests that these

individuals experience a wide range of emotions and that these should be taken into consideration when developing theoretical and treatment models of psychosis.

An interesting finding from the BES is that the emotion experienced most often in both the clinical groups was fear, given the mixed presentation in both the clinical groups one may have expected similar levels of emotions, such as sadness and fear. If this is found in future studies it would suggest that fear could be an important emotion to consider when working with a variety of clinical groups, where it may have been considered to be most important to consider in anxiety disorders.

The final aim of this study was to investigate the use of coping strategies in psychosis in comparison with anxiety/mood disorders and healthy volunteers. It was hypothesised that individuals with psychosis would use similar coping strategies to individuals with an anxiety/mood disorder and that this would differ from healthy volunteers. This hypothesis was supported, to some extent, by the results of the Brief COPE. The 2 clinical groups were found to use similar levels of Maladaptive coping, significantly greater than the healthy volunteers. With regard to Adaptive coping, no significant differences were found between the groups. Healthy volunteers were found to use significantly higher levels of Problem Focussed coping strategies than the clinical groups, while no significant differences were found in relation to Emotion Focussed coping. The finding of reduced levels of Problem Focussed coping strategies in the clinical groups and greater levels of Maladaptive coping reflect findings from previous studies (e.g. Van den Bosch et al., 1992, Horan and Blanchard, 2003).

Overall the results from this study appear to fit together as would be expected. In general the clinical groups were found to use higher levels of less adaptive emotion regulation strategies than the healthy volunteers and experienced greater levels of emotionality and what could be conceptualised as negative emotions, alongside using less problem-focussed coping strategies and more maladaptive coping strategies than the healthy volunteers. The results suggest that more emphasis and importance should be placed upon emotional dysfunction and regulation than is currently the case in psychosis.

4.2. Clinical implications of findings

On the basis of this study alone it is difficult to extract broader clinical implications however, as further research is carried out into emotion regulation it is anticipated that significant contributions may be made towards clinical work with individuals with psychosis. The enhancement of emotion regulation skills is likely to be embedded in many therapeutic approaches for mental health problems, although this may be considered somewhat implicit. In the case of psychosis emphasis may be placed more on psychotic symptoms and less on emotion dysfunction than may be the case in other clinical groups given the historical lack of emphasis on emotional dysfunction in this group.

While more research is required in order to clarify and validate the key findings of this study a number of clinical implications can be identified. These would include the importance of assessing emotion regulation strategies and considering the implications of these for therapy, paying greater attention to the role of emotional

dysregulation in the formation, maintenance and course of psychosis, identifying beliefs about emotion regulation and challenging these where they may be unhelpful and enhancing emotion regulation skills. Individuals for whom emotional regulation is particularly difficult may benefit from a therapeutic approach which places emotional functioning and the development of emotion regulation skills at its core.

The implication of an emotion regulation approach to psychosis would suggest that instead of focussing on symptoms such as delusions and hallucinations, as outlined in most textbooks (e.g. Morrison, 2002), the focus should be on emotional dysfunction, perhaps focussing on the 5 basic emotions proposed by Power (in press). This approach would be characterised by honing in on emotional dysfunction as opposed to psychotic symptomatology. The aim of psychological interventions for psychosis such as cognitive-behavioural therapy (CBT) is to reduce psychotic symptoms in order to reduce the distress which accompanies them, however no consistent effect has been found on emotional dysfunction using CBT for psychosis (Birchwood, 2003), suggesting that changing the focus of treatment to emotional dysfunction may prove more fruitful. Bach and Hayes (2002) suggest that the focus of therapy could be less on the psychotic processes and more on the accompanying feelings of failure, depression and anxiety.

The finding that individuals who experience psychosis experience greater difficulty with the internal regulation of their emotions would suggest that therapeutic approaches should focus on developing functional internal emotion regulation strategies. This approach might be characterised by the development of self-soothing

techniques and mindfulness (Kabat-Zinn, 1990) as well as strategies already used in many cognitive-behavioural therapies such as relaxation. In the current study individuals who experienced psychosis were not found to be significantly different to healthy volunteers with regard to external emotion regulation strategies. This could possibly be due to them already being involved with services and having developed these strategies as part of the therapeutic process. If further research found that individuals who experience psychosis differed to healthy volunteers with regard to their use of external emotion regulation strategies prior to psychological intervention this would suggest that it would be important to continue to work on developing external emotion regulation strategies alongside internal strategies.

4.3. Theoretical implications of findings

As with the clinical implications it is difficult to extract definitive theoretical implications on the basis of this study alone however, as further research is carried out into emotion regulation it is anticipated that significant contributions may be made towards understanding the role of emotional disturbance in the development, maintenance and course of psychosis.

While more research is required in order to clarify and validate the key findings of this study a number of theoretical implications can be proposed. In relation to current theories of psychosis difficulties with emotion regulation can be seen to be related to symptoms of psychosis. For example Bentall (1990) suggests that hallucinations may represent cognitive biases which are reinforced through reduction in anxiety. These cognitive biases could be considered as emotion regulation strategies in that they

serve an anxiety reducing function. The finding that individuals with psychosis use significantly more Internal-Dysfunctional emotion regulation strategies than healthy volunteers may fit with the cognitive biases described by Bentall, however more research directly assessing this proposal needs to be carried out.

Morrison (1998) offers an understanding of hallucinations based on Clark's (1986) model of panic disorder. This model places the use of safety seeking behaviours at the core of the maintenance of hallucinations. Safety seeking behaviours could be considered emotion regulation strategies as they are employed in order to reduce feelings of anxiety. The findings of this study did not identify External-Dysfunctional emotion regulation strategies as more problematic for the psychosis group however if future studies found difficulties with external emotion regulation these may fit with a model which includes safety seeking behaviour as a maintaining factor. Freeman, Garety and Kuipers (2001) also identify safety seeking behaviours as important in the maintenance of delusions, which could be related to emotion regulation in a similar fashion to hallucinations.

The finding that individuals with psychosis were less likely to employ Cognitive Reappraisal as an emotion regulation strategy may be linked with the studies investigating reasoning biases in psychosis. Dudley, John, Young and Over (1997) found that individuals who experienced psychosis were more likely to jump to conclusions based on limited information, in relation to emotional regulation this may be reflected by a lack of Cognitive Reappraisal in this group. An interesting finding of the Dudley et al. (1997) study was that when provided with greater

amounts of evidence the individuals with psychosis were willing to change their conclusions, perhaps suggesting that if jumping to conclusions is related to emotion regulation style then individuals with psychosis may be helped therapeutically by increasing their ability to use Cognitive-Reappraisal through cognitive therapy techniques such as evidence gathering.

It would appear that the concept of emotion regulation can be considered alongside many of the concepts discussed by cognitive theorists, such as safety seeking behaviours and cognitive biases related to psychosis. Emotion regulation can also be seen to be closely linked with concepts discussed by psychoanalysts. The concept of 'splitting off' negatively valenced emotions and projecting them on to the external world, described by Frosch (1983) and Klein (1946/86), can be seen to serve an emotion regulatory function. Psychoanalysts view defence mechanisms characteristic of early childhood as responsible for psychotic experiences such as hallucinations and delusions. This proposal fits well with emotion regulation theories which view the development of emotion regulation as starting early in childhood and consider that an individual develops a stable emotion regulation style through their caregiving experiences (Thomson, 1994; Calkins, 1994).

4.4. Areas for further research

The key findings of this research require replication in order to be confident that the differences found would also be evident in other samples. In particular it would be beneficial to determine whether the gender differences found in Cognitive Reappraisal in psychosis are specific to this sample or a more widespread finding.

Given the early stage of knowledge of emotion regulation there is much is that is still to be understood in the general population as well as in clinical populations.

The measures of emotion regulation chosen for this study were only recently developed and no published research was identified which reported on their use with individuals who had experienced psychosis. Future research into emotion regulation would benefit from the validation of and further development of emotion regulation measures with the general as well as clinical populations.

If future research establishes links between emotion regulation and psychosis, this would lead to the critical question of whether difficulties with emotion regulation precede the onset of and can be considered vulnerability factors of psychosis. This question would need to be addressed by a prospective research design. Longitudinal research may also contribute to understanding whether particular styles of emotion regulation influence specific difficulties.

Future research may also consider investigating links between the pathways proposed by Birchwood (2003) to emotional dysfunction in psychosis and emotion regulation. Birchwood (2003) suggests that emotional disorders in psychosis may develop as a reaction to the psychosis itself or from developmental disturbance triggered by childhood trauma or emerging psychosis or both. It may be useful to determine whether individuals in each of the pathways attempt to regulate their emotions in similar or different ways as this is likely to have implications for the treatment of emotional dysregulation in these individuals. In the first pathway

whereby emotional disturbance arises as a reaction to the psychosis, emotion regulation strategies may be characterised by a lack of cognitive reappraisal as it is the individual's attributions about their psychosis which is at the core of their emotional disturbance. If this were found to be the case treatments for these individuals would be most appropriately aimed at helping them to develop more functional reappraisal strategies. In the second pathway whereby emotional disturbance arises as a result of developmental trauma, emotion regulation strategies may be characterised by dysfunctional internal or external emotion regulation styles related to the individuals dysfunctional schema development. If this were found to be the case treatments for these individuals would be most appropriately aimed at schema level work.

In relation to this particular piece of research it would be worthwhile to replicate these findings with larger groups, matched for age and gender, to validate the key findings of the present study. In terms of the measures used it will be important to validate the ERQ-2 and the BES for use with psychiatric populations.

During the recruitment of participants for this study a number of comments were made by individuals about their beliefs about emotions and whether they are within our control. An interesting aside from the focus of this research would be to develop a qualitative research methodology to investigate the beliefs of individuals who experience psychosis about their ability to regulate their emotions. Geekie's (2004) research, based on grounded theory, identified emotional experience as an important aspect of psychosis for the participants involved in his research and highlighted

'overwhelming emotional arousal' (Geekie, 2004: 154) as of particular significance, suggesting that some of the participants in his study may have felt they had little control over their emotional arousal. Beliefs about controllability of emotions are likely to play an important role in emotion regulation attempts and may offer insights into the internal working models of emotions in this group. This approach may be particularly useful given the early stage of our knowledge in this area.

4.5. Critique of the study design

The cross–sectional design of this study means that it is not possible to reliably establish the direction of any causal relationships between the variables. For example, it is not possible to determine whether differences in emotion regulation represent a vulnerability to developing psychosis or an anxiety/mood disorder, or whether these differences develop alongside mental health difficulties.

The nature of this research project would not allow for a longitudinal design. However, given the lack of research in the area of emotion regulation, an investigative approach to begin to explore emotion regulation in clinical populations can be considered worthwhile. In the longer term research into emotion regulation in mental health would benefit from prospective research taking a developmental psychopathology approach whereby vulnerability factors, such as emotion regulation strategies, could be assessed over the long term to determine whether there is any association with later mental health difficulties.

The psychosis and anxiety/mood disorder groups in this study were comprised of significantly different ratios of male to females. One explanation for this gender difference may be that it is a reflection of different rates of diagnosis for the sexes, with more males being diagnosed with some form of psychosis, and more females being diagnosed with anxiety/mood disorders (Read, 2004c). In light of the significant group differences in gender composition, which have made the interpretation of some of the findings more difficult, future studies would benefit from attempting to ensure a closer ratio of males to females in both groups.

The recruitment of participants from Clinical Psychologists' caseloads offers both benefits and potential for bias. Some of the benefits include that individuals were not unnecessarily burdened where there was good contra-indications to inviting them to participate in this study and that the sample is likely to be reflective of individuals who are attending psychology departments. However, psychologists may have tended to select individuals who they believed were most likely to take part and been more conservative in other cases and so the sample may be shaped by clinicians' views on appropriate participants. This possibility was kept to a minimum by the provision of clear guidance regarding exclusion and inclusion criteria and by regular contact between the investigator and the referring clinicians.

Another aspect relating to the clinical samples is that they are likely to be biased towards individuals who are actively engaged with and regularly attending psychology appointments and who are willing to share and reflect upon their emotional experiences. This sample may therefore represent a particular subgroup of

individuals with mental health problems. However given the early stage of research in this area it seems appropriate to develop understandings with those who are most able and willing to reflect upon their experiences with the hope of expanding the research to other samples in the future. Future research would benefit from including individuals who are not engaged in psychological therapy to determine whether there are any differences between these groups, it would also be useful to assess a sample of individuals who are not currently engaged with psychiatric services in general, although they are likely to be more difficult to identify and recruit.

An important consideration in this study was the measures used to assess emotion regulation, emotional experience and coping strategies. The use of self-report measures relies to a large extent on the awareness of the individual concerned regarding the concept in question. Given the nature of the processes in emotion regulation it is likely that they are not all carried out with full awareness and may be considered to be relatively non-conscious. For example some individuals may not always be fully aware that by suppressing the expression of their emotions they are impacting on the regulation of their emotions. The reliance on self-report may therefore reduce the accuracy of the assessment of emotion regulation strategies, however at the current time there are no available alternatives.

Research into the development of emotion regulation in children has often utilised observational paradigms similar to those used in attachment research (Thomson, 1994). For the purposes of this study it was not considered feasible to utilise this approach as the situations used with children would have had to have been heavily

modified for use with an adult population. Furthermore, in order to use observations as a method of assessing emotion regulation in this study, one would have to have a very clear understanding of typical behavioural correlates of emotion regulation strategies and this level of understanding has not yet been reached (Gross, 1999).

4.6. Conclusions

The findings of this study provide support for a continuum model of mental health whereby psychosis can be understood alongside other mental health problems such as anxiety and depression. The significant differences found between the clinical groups and the healthy volunteers but not between the 2 clinical groups suggest that psychotic and neurotic disorders may be more similar than traditionally thought.

This study suggests that emotional regulation should be considered as an important factor in understanding the development, maintenance and course of mental health difficulties, including psychosis, and that treatment should therefore focus on emotional dysfunction and regulation as opposed to focussing solely on psychotic symptoms.

Given the early stages of understanding of emotion regulation in non-clinical as well as clinical populations a great deal of exploration and research is still required. Potential areas for future development have been identified, including addressing some of the shortcomings of this study. Although this initial study has found evidence of difficulties with the regulation of emotions in psychosis further research needs to be carried out in order to validate these findings and to determine whether

the gender difference found in Cognitive Reappraisal in the psychosis group is consistent in other samples. The complexity and accessibility of some of the constructs relating to emotional regulation and the relatively early stages of understanding in this area in general pose challenges to carrying out research in this area. Nonetheless developing a better understanding of emotional experience and regulation in psychosis may provide valuable insights into the development, maintenance and course of psychosis, which could allow for further developments of treatment approaches with this client group.

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Appendices

Appendix 1: Ethics Committee Certificate

Lothian NHS Board

Deaconess House
148 Pleasance
Edinburgh
EH8 9RS
Telephone 0131 536 9000
Fax 0131 536 9009

NHS
Lothian

Lothian Local Research Ethics Committee 02
Telephone: 0131 536 9061
Facsimile: 0131 536 9346

23 January 2006

Miss Karen Livingstone
Trainee Clinical Psychologist
Lothian Primary Care NHS Trust
Psychology Department
Rosslynlee Hospital
Roslin, Midlothian
EH25 9QE

Dear Miss Livingstone

Full title of study: **Emotion regulation and coping in psychosis: A comparison of individuals who have experienced psychosis, individuals with a mood or anxiety disorder who have not experienced psychosis and healthy controls**

REC reference number: **05/S1102/48**

Thank you for your letter of 23 December 2005, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered at the meeting of the Sub-Committee of the REC held on 18 January 2006.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Application	1	10 November 2005
Investigator CV		10 November 2005
Protocol	1	10 November 2005
Compensation Arrangements		16 November 2005
Questionnaire	Validated	10 November 2005
GP/Consultant Information Sheets	1	10 November 2005
Participant Information Sheet	2	23 December 2005
Participant Information Sheet	2	23 December 2005
Participant Information Sheet	2	23 December 2005

Participant Consent Form	2	23 December 2005
Response to Request for Further Information		23 December 2005
Supervisor CV		10 November 2005

Research governance approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final research governance approval from the R&D Department for the relevant NHS care organisation.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

05/S1102/48	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

Professor Peter Hayes
Chair

Email: lyndsay.baird@lhb.scot.nhs.uk

Enclosures: *Standard approval conditions*
Site approval form

SF1 list of approved sites

Lothian Local Research Ethics Committee 02

LIST OF SITES WITH A FAVOURABLE ETHICAL OPINION

For all studies requiring site-specific assessment, this form is issued by the main REC to the Chief Investigator and sponsor with the favourable opinion letter and following subsequent notifications from site assessors. For issue 2 onwards, all sites with a favourable opinion are listed, adding the new sites approved.

REC reference number:	05/S1102/48	**Issue number:**	1	**Date of issue:**	23 January 2006

Chief Investigator: Miss Karen Livingstone

Full title of study: Emotion regulation and coping in psychosis: A comparison of individuals who have experienced psychosis, individuals with a mood or anxiety disorder who have not experienced psychosis and healthy controls

This study was given a favourable ethical opinion by Lothian Local Research Ethics Committee 02 on 22 February 2006. The favourable opinion is extended to each of the sites listed below. The research may commence at each NHS site when management approval from the relevant NHS care organisation has been confirmed.

Principal Investigator	*Post*	*Research site*	*Site assessor*	*Date of favourable opinion for this site*	*Notes* [1]
Miss Karen Livingstone	Trainee Clinical Psychologist	Clinical Dept, Rosslynlee Hospital. Eastfield Medical Centre, Penicuik. Glenesk Centre, Dalkeith. Bonnyrigg Health Centre, Bonnyrigg.	Lothian Local Research Ethics Committee 02	23/01/2006	

Approved by the Chair on behalf of the REC:

..... (Signature of Chair/Administrator)
(delete as applicable)

..... (Name)

(1) *The notes column may be used by the main REC to record the early closure or withdrawal of a site (where notified by the Chief Investigator or sponsor), the suspension of termination of the favourable opinion for an individual site, or any other relevant development. The date should be recorded.*

Appendix 2: Patient Information Sheet

Primary and Community Division

NHS
Lothian

Title of the project: How people cope with emotions and day to day life stessors.
Name of researcher: Karen Livingstone
23/12/2005 Version 2
Patient Population 1

Information Sheet

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

What is the purpose of this study?
The purpose of this study is to find out how people, who have experienced a psychotic episode, cope with emotions and with day to day life stressors. It also aims to look at the beliefs people have about their ability to cope with their emotions.

Do I have to take part?
No, your participation is entirely voluntary. Should you decide not to take part, your decision will not have any effect on your present or future care.

You have time to think about your decision to participate. If you decide to take part, you will be given this information sheet to keep and will be asked to sign a consent form.

If you decide to take part, you are still free to withdraw at any time and without giving any reason.

What do I have to do?
You will be asked to fill in some questionnaires, which look at the way you have been feeling, how you cope with your feelings and how you cope with day to day life stressors. Our meeting will last approximately 1 hour. We can meet where you normally meet with your psychologist or at your home, whichever is most convenient to you.

Results of the research:
This study will run for the first 6 months of the year 2006. All information will be entirely confidential. Only properly authorised persons (e.g. your psychiatrist) may have access to this information. Your GP will also be informed of your participation in the study and about the nature of the research.

In due course, it will be possible for you to see the results of this research of you wish to do so (these will not include individual findings, but the main results of the study).

You can contact me, Karen Livingstone (Tel: 0131 536 7604), Psychology Department, Rosslynlee Hospital, Roslin, for further information. If you have any problems or concerns resulting from the interview my supervisor, Dr Sean Harper, would be available to talk to on the above number.

Please ask if you have any questions

Thank you for your help

Divisional Headquarters:
St. Roque, Astley Ainslie Hospital, 133 Grange Loan, Edinburgh EH9 2HL

Divisional Chief Executive Murray Duncanson

Appendix 3: Emotion Regulation Questionnaire (ERQ)

Emotion Regulation Questionnaire (ERQ)
J. Gross and O. John (2003)

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. We are interested in two aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale.

1----------2----------3----------4----------5----------6----------7

Strongly Disagree — Neutral — Strongly Agree

1. **When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*** ☐
2. **I keep my emotions to myself** ☐
3. **When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*** ☐
4. **When I am feeling *positive* emotions, I am careful not to express them** ☐
5. **When I am faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm** ☐
6. **I control my emotions by not expressing them** ☐
7. **When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation** ☐
8. **I control my emotions by *changing the way I think* about the situation I am in** ☐
9. **When I am feeling *negative* emotions, I make sure not to express them** ☐
10. **When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation** ☐

Appendix 4: Emotion Regulation Questionnaire 2 (ERQ-2)

Emotion Regulation Questionnaire 2

We all experience lots of different feelings or emotions. For example, different things in our lives make us feel happy, sad, angry and so on...

The following questions ask you to think about **how often** you do certain things **in response to your emotions**. You do not have to think about specific emotions but just how often you **generally** do the things listed below.

Please tick the box corresponding to the answer that fits best. We all respond to our emotions in different ways so there are no right or wrong answers.

In GENERAL how do you respond to your emotions?	**Never**	**Seldom**	**Often**	**Very Often**	**Always**
1. I talk to someone about how I feel	O	O	O	O	O
2. I take my feelings out on others verbally (e.g. shouting, arguing)	O	O	O	O	O
3. I seek physical contact from friends or family (e.g. a hug, hold hands)	O	O	O	O	O
4. I review (rethink) my thoughts or beliefs	O	O	O	O	O
5. I harm or punish myself in some way	O	O	O	O	O
6. I do something energetic (e.g. play sport, go for a walk)	O	O	O	O	O
7. I dwell on my thoughts and feelings (e.g. It goes round and round in my head and I can't stop it)	O	O	O	O	O

In **GENERAL** how do you respond to your emotions?	Never	Seldom	Often	Very Often	Always
8. I ask others for advice	○	○	○	○	○
9. I review (rethink) my goals or plans	○	○	○	○	○
10. I take my feelings out on others physically (e.g. fighting, lashing out)	○	○	○	○	○
11. I put the situation into perspective	○	○	○	○	○
12. I concentrate on a pleasant activity	○	○	○	○	○
13. I try to make others feel bad (e.g. being rude, ignoring them)	○	○	○	○	○
14. I think about people better off and make myself feel worse	○	○	○	○	○
15. I keep the feeling locked up inside	○	○	○	○	○
16. I plan what I could do better next time	○	○	○	○	○
17. I bully other people (e.g. saying nasty things to them, hitting them)	○	○	○	○	○
18. I take my feelings out on objects around me (e.g. deliberately causing damage to my house, school or outdoor things)	○	○	○	○	○
19. Things feel unreal (e.g. I feel strange, things around me feel strange, I daydream)	○	○	○	○	○
20. I telephone friends or family	○	○	○	○	○
21. I go out and do something nice (e.g. cinema, shopping, go for a meal, meet people)	○	○	○	○	○

Thank you for your help.

Appendix 5: The Basic Emotions Scale

THE BASIC EMOTIONS SCALE

The purpose of this scale is to find out how much or how often you experience certain emotions and then to ask some questions about how you feel actually during particular emotions themselves

The first part of the scale is designed to explore how you have felt **DURING THE LAST WEEK**. For each emotion, please circle **ONE** number only between 1 and 7, to indicate how you have felt.

OVER THE LAST WEEK I HAVE FELT:

	not at all			**some of the time**			**all of the time**
ANGER	**1**	**2**	**3**	**4**	**5**	**6**	**7**
DESPAIR	**1**	**2**	**3**	**4**	**5**	**6**	**7**
SHAME	**1**	**2**	**3**	**4**	**5**	**6**	**7**
ANXIETY	**1**	**2**	**3**	**4**	**5**	**6**	**7**
HAPPINESS	**1**	**2**	**3**	**4**	**5**	**6**	**7**
FRUSTRATION	**1**	**2**	**3**	**4**	**5**	**6**	**7**
MISERY	**1**	**2**	**3**	**4**	**5**	**6**	**7**
GUILT	**1**	**2**	**3**	**4**	**5**	**6**	**7**
NERVOUSNESS	**1**	**2**	**3**	**4**	**5**	**6**	**7**
JOY	**1**	**2**	**3**	**4**	**5**	**6**	**7**
IRRITATION	**1**	**2**	**3**	**4**	**5**	**6**	**7**
GLOOMINESS	**1**	**2**	**3**	**4**	**5**	**6**	**7**
HUMILIATED	**1**	**2**	**3**	**4**	**5**	**6**	**7**
TENSE	**1**	**2**	**3**	**4**	**5**	**6**	**7**
LOVING	**1**	**2**	**3**	**4**	**5**	**6**	**7**
AGGRESSION	**1**	**2**	**3**	**4**	**5**	**6**	**7**
MOURNFUL	**1**	**2**	**3**	**4**	**5**	**6**	**7**
BLAMEWORTHY	**1**	**2**	**3**	**4**	**5**	**6**	**7**
WORRIED	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CHEERFUL	**1**	**2**	**3**	**4**	**5**	**6**	**7**

In the second part of this questionnaire we would like to know about how you feel **IN GENERAL.**

This section asks about **HOW OFTEN** you feel the emotion

Again, for each emotion please circle **ONE** number only between 1 and 7, to indicate how you feel.

IN GENERAL, I FEEL THIS EMOTION:

	never			sometimes			very often
ANGER	1	2	3	4	5	6	7
DESPAIR	1	2	3	4	5	6	7
SHAME	1	2	3	4	5	6	7
ANXIETY	1	2	3	4	5	6	7
HAPPINESS	1	2	3	4	5	6	7
FRUSTRATION	1	2	3	4	5	6	7
MISERY	1	2	3	4	5	6	7
GUILT	1	2	3	4	5	6	7
NERVOUSNESS	1	2	3	4	5	6	7
JOY	1	2	3	4	5	6	7
IRRITATION	1	2	3	4	5	6	7
GLOOMINESS	1	2	3	4	5	6	7
HUMILIATED	1	2	3	4	5	6	7
TENSE	1	2	3	4	5	6	7
LOVING	1	2	3	4	5	6	7
AGGRESSION	1	2	3	4	5	6	7
MOURNFUL	1	2	3	4	5	6	7
BLAMEWORTHY	1	2	3	4	5	6	7
WORRIED	1	2	3	4	5	6	7
CHEERFUL	1	2	3	4	5	6	7

In the third part of this questionnaire we would like to ask you for some information about **HOW WELL YOU FEEL YOU COPE** when you experience certain emotions. For example, you might feel completely out of control of the emotion, or overwhelmed by the emotion in some other way.

Please note: even if you **never** experience a particular emotion please answer the question by imagining how you think you would feel if you did experience that emotion.

Again, for each emotion, please circle **ONE** number only between 1 and 7, to indicate how well you feet you cope with the emotion.

	Cope very well						**Cope very badly**
ANGER	1	2	3	4	5	6	7
DESPAIR	1	2	3	4	5	6	7
SHAME	1	2	3	4	5	6	7
ANXIETY	1	2	3	4	5	6	7
HAPPINESS	1	2	3	4	5	6	7
FRUSTRATION	1	2	3	4	5	6	7
MISERY	1	2	3	4	5	6	7
GUILT	1	2	3	4	5	6	7
NERVOUSNESS	1	2	3	4	5	6	7
JOY	1	2	3	4	5	6	7
IRRITATION	1	2	3	4	5	6	7
GLOOMINESS	1	2	3	4	5	6	7
HUMILIATED	1	2	3	4	5	6	7
TENSE	1	2	3	4	5	6	7
LOVING	1	2	3	4	5	6	7
AGGRESSION	1	2	3	4	5	6	7
MOURNFUL	1	2	3	4	5	6	7
BLAMEWORTHY	1	2	3	4	5	6	7
WORRIED	1	2	3	4	5	6	7
CHEERFUL	1	2	3	4	5	6	7

Thank you very much for your help with this questionnaire

Appendix 6: The Brief COPE

The Brief COPE
C.S. Carver (1997)

These items deal with ways you cope with day to day life stressors. There are many ways to deal with stressors. These items ask what you usually do. Obviously, different people deal with things in different ways, but I'm interested in how you deal with them. Each item says something about a particular way of coping. I want to know to what extent you usually do what the item says. How much or how frequently. Don't answer on the basis of whether it seems to work or not – just whether you do it. Please tick in the box that describes you best. Make your answers as true **for you** as you can.

In general how often do you do each of the following:	Not at all	A little bit	A medium amount	A lot
1. I turn to work or other activities to take my mind off things				
2. I concentrate my efforts on doing something about the situation I'm in				
3. I say to myself "this isn't real"				
4. I use alcohol or other drugs to make myself feel better				
5. I get emotional support from others				
6. I give up trying to deal with it				
7. I take action to try to make the situation better				
8. I refuse to believe it has happened				
9. I say things to let my unpleasant feelings escape				
10. I get help and advice from other people				
11. I use alcohol or other drugs to help me get through it				
12. I try to see it in a different light, to make it seem more positive				

In general how often do you do each of the following:	Not at all	A little bit	A medium amount	A lot
13. I criticise myself				
14. I try to come up with a strategy about what to do				
15. I get comfort and understanding from someone				
16. I give up the attempt to cope				
17. I look for something good in what is happening				
18. I make jokes about it				
19. I do something to think about it less, such as going to the movies, watching, TV, reading, daydreaming, sleeping or shopping				
20. I accept the reality of the fact it has happened				
21. I express my negative feelings				
22. I try to find comfort in my religion or spiritual beliefs				
23. I try to get advice or help from other people about what to do				
24. I learn to live with it				
25. I think hard about what steps to take				
26. I blame myself for things that happened				
27. I pray or meditate				
28. I make fun of the situation				

Appendix 7

Table A.1. Exploratory data analyses

Variable	Group	Mean (SD)	Skewness	Kurtosis
Age	Psychosis	39.27 (11.30)	0.547	-0.347
	AMD	40.52 (10.67)	-0.325	-0.349
	Healthy Vol	40.00 (11.89)	0.557	-0.231
ERQ Cognitive Reappraisal	Psychosis	24.19 (8.64)	-0.253	-1.024
	AMD	24.19 (9.18)	0.081	-0.744
	Healthy Vol	30.76 (4.11)	0.322	0.300
ERQ Expressive Suppression	Psychosis	16.81 (5.76)	-0.402	-0.570
	AMD	16.33 (4.83)	-0.582	0.797
	Healthy Vol	13.71 (4.96)	0.053	-0.787
ERQ-2 Internal-Dysfunctional	Psychosis	14.95 (2.64)	1.179	1.18
	AMD	15.05 (3.35)	0.280	0.620
	Healthy Vol	8.76 (3.59)	0.281	-1.070
ERQ-2 Internal-Functional	Psychosis	13.05 (2.42)	0.830	2.423
	AMD	13.67 (2.94)	-0.696	0.781
	Healthy Vol	15.33 (1.91)	0.140	-0.792
ERQ-2 External Dysfunctional	Psychosis	6.76 (1.58)	0.771	-0.217
	AMD	7.71 (2.00)	0.188	-0.685
	Healthy Vol	6.76 (0.89)	-0.427	-0.224
ERQ-2 External Functional	Psychosis	15.48 (2.66)	0.312	0.607
	AMD	16.81 (4.93)	0.706	-0.298
	Healthy Vol	17.33 (3.23)	0.868	0.789
BES Last Week Anger	Psychosis	12.24 (4.55)	0.315	-0.581
	AMD	12.95 (4.75)	0.336	-0.949
	Healthy Vol	11.76 (4.67)	0.737	0.163
BES Last Week Sadness	Psychosis	12.10 (5.47)	0.063	-1.382
	AMD	12.62 (6.52)	0.885	0.503
	Healthy Vol	6.48 (3.67)	1.948	3.320
BES Last Week Disgust	Psychosis	9.67 (5.40)	0.614	-0.925
	AMD	11.05 (6.37)	0.622	0.230
	Healthy Vol	5.95 (2.75)	1.830	3.268
BES Last Week Fear	Psychosis	17.52 (4.80)	0.346	-0.151
	AMD	18.76 (5.14)	0.164	-0.495
	Healthy Vol	11.48 (4.66)	0.747	-0.092
BES Last Week Happiness	Psychosis	11.90 (5.23)	-0.153	-1.157
	AMD	14.43 (5.63)	0.020	-0.899
	Healthy Vol	19.62 (3.54)	-0.928	0.616
BES Last Week Overall	Psychosis	63.90 (15.15)	0.277	-1.091
	AMD	69.76 (14.53)	0.671	0.689
	Healthy Vol	55.38 (13.95)	1.731	3.508

Note. Standard Error of Skewness = 0.501; Standard Error of Kurtosis = 0.972; ERQ = Emotion Regulation Questionnaire; ERQ-2 = Emotion Regulation Questoinnaire-2; BES = Basic Emotion Scale; SD = Standard Deviation; AMD = Anxiety/Mood Disorder group.

Table A.1. Exploratory data analyses (*continued*)

Variable	Group	Mean (SD)	Skewness	Kurtosis
BES General Anger	Psychosis	15.00 (5.03)	0.386	-0.543
	AMD	14.90 (5.02)	0.225	-0.811
	Healthy Vol	12.33 (4.52)	1.113	1.628
BES General Sadness	Psychosis	15.86 (5.83)	-0.073	-0.551
	AMD	16.10 (6.30)	0.124	-0.381
	Healthy Vol	7.33 (4.25)	1.502	1.294
BES General Disgust	Psychosis	11.38 (6.48)	0.996	0.190
	AMD	12.76 (6.28)	0.802	0.256
	Healthy Vol	7.00 (2.51)	1.573	4.159
BES General Fear	Psychosis	20.57 (4.35)	-0.181	-0.957
	AMD	21.29 (4.01)	-0.016	-0.432
	Healthy Vol	13.00 (4.18)	0.693	1.017
BES General Happiness	Psychosis	13.00 (4.44)	-0.432	0.043
	AMD	15.10 (5.53)	0.620	0.868
	Healthy Vol	20.62 (3.61)	-0.735	0.064
BES General Overall	Psychosis	75.33 (18.06)	1.090	0.072
	AMD	80.62 (12.15)	-0.007	-0.611
	Healthy Vol	60.33 (14.26)	1.191	1.599
Brief COPE Self Distraction	Psychosis	5.81 (1.37)	-0.013	-0.364
	AMD	6.14 (1.53)	-0.731	-0.119
	Healthy Vol	5.76 (1.45)	0.131	-1.291
Brief COPE Active Coping	Psychosis	4.86 (1.71)	0.509	-0.625
	AMD	4.86 (1.46)	0.379	-0.081
	Healthy Vol	6.43 (1.25)	-0.418	-0.468
Brief COPE Denial	Psychosis	4.00 (1.58)	1.007	0.922
	AMD	3.20 (1.65)	1.273	0.741
	Healthy Vol	2.62 (1.12)	3.239	12.559
Brief COPE Substance Use	Psychosis	3.24 (1.34)	1.041	1.416
	AMD	3.62 (2.04)	1.400	1.075
	Healthy Vol	2.86 (1.11)	0.795	-0.950
Brief COPE Emotional Support	Psychosis	5.57 (1.83)	-0.153	-0.829
	AMD	5.71 (1.45)	0.445	-1.100
	Healthy Vol	5.52 (1.37)	-0.186	-0.976
Brief COPE Instrumental Support	Psychosis	5.57 (1.40)	-0.344	-0.653
	AMD	5.33 (1.65)	0.582	-1.078
	Healthy Vol	5.67 (1.39)	-0.073	-0.722
Brief COPE Behavioural Disengagement	Psychosis	4.19 (1.17)	0.219	-0.696
	AMD	5.00 (2.09)	0.108	-1.234
	Healthy Vol	2.33 (0.79)	2.583	6.408
Brief COPE Venting	Psychosis	4.38 (1.16)	-0.635	-0.033
	AMD	4.29 (1.62)	0.663	-0.126
	Healthy Vol	4.33 (1.43)	0.487	0.895

Note. Standard Error of Skewness = 0.501; Standard Error of Kurtosis = 0.972; BES = Basic Emotion Scale; SD = Standard Deviation; AMD = Anxiety/Mood Disorder group.

Table A.1. Exploratory data analyses (*continued*)

Variable	Group	Mean (SD)	Skewness	Kurtosis
Brief COPE Positive Reframing	Psychosis	3.90 (1.51)	0.655	-0.739
	AMD	4.81 (1.37)	0.510	-0.007
	Healthy Vol	5.38 (1.02)	0.665	0.779
Brief COPE Planning	Psychosis	5.14 (1.35)	-0.419	-0.454
	AMD	5.67 (1.24)	-0.860	0.194
	Healthy Vol	6.00 (1.05)	0.000	0.399
Brief COPE Humour	Psychosis	4.67 (2.03)	0.266	-0.996
	AMD	4.19 (2.11)	0.533	-1.021
	Healthy Vol	4.71 (1.65)	0.136	-0.155
Brief COPE Acceptance	Psychosis	6.05 (1.36)	0.038	-1.131
	AMD	6.48 (1.69)	-1.461	1.628
	Healthy Vol	6.05 (0.65)	-0.727	0.699
Brief COPE Religion	Psychosis	3.81 (2.14)	0.750	-1.000
	AMD	3.62 (1.91)	0.893	-0.262
	Healthy Vol	3.10 (1.99)	1.727	1.856
Brief COPE Self-Blame	Psychosis	6.38 (1.36)	-0.779	0.554
	AMD	6.62 (1.77)	-1.196	0.626
	Healthy Vol	4.38 (1.43)	0.944	0.996
Brief COPE Adaptive	Psychosis	39.57 (8.06)	0.284	-0.562
	AMD	40.67 (7.07)	0.120	-1.598
	Healthy Vol	43.33 (6.38)	0.458	0.439
Brief COPE Maladaptive	Psychosis	28.00 (3.39)	0.493	0.029
	AMD	28.95 (4.88)	0.234	-0.613
	Healthy Vol	22.29 (4.83)	0.787	0.008
Brief COPE Problem Focussed Coping	Psychosis	15.57 (3.36)	0.141	-1.059
	AMD	15.86 (2.90)	0.915	0.093
	Healthy Vol	18.10 (2.66)	-0.306	1.191
Brief COPE Emotion Focussed Coping	Psychosis	13.86 (3.26)	0.007	-1.028
	AMD	14.81 (2.62)	0.469	-0.691
	Healthy Vol	15.24 (2.99)	-0.008	-0.618

Note. Standard Error of Skewness = 0.501; Standard Error of Kurtosis = 0.972; SD = Standard Deviation; AMD = Anxiety/Mood Disorder group.